PAPER TRADE JOURNAL
Title Reg. U. S. Pat. Off.

Vol. 116, No. 25 Thursday, June 24, 1943 Price Ten Cents

Hold Wartime Service Meeting in New York

American Pulp And Paper Mill Superintendents Association At Twenty-Fourth Annual Convention Stress Part Of Paper Industry In Winning The War—S. G. Blankenship Is Elected President.

The twenty-fourth annual convention of the American Pulp and Paper Mill Superintendents Association was held in New York, June 15-17 inclusive, on the ballroom floor of the Hotel Commodore. It was a Wartime Service Meeting with an interesting and constructive program, which included important panel discussions. The first day of the convention was devoted to registration, an all-day reception and an affiliates' luncheon in the evening.

The program on Tuesday opened with a business meeting, preceded by an invocation. In memoriam President Keeth read the names of members who had died during the past year. In opening the session the president called attention to a new gavel, molded from a plastic developed by the Marathon Paper Mills. In naming the convention committees President Keeth scheduled Homer L. Latimer, Roy Zellers and Walter Johnson to the Auditing Committee. Resolutions Committee—Harry Weston, K. E. Terry and Ray L. Barton. Nominating Committee — Fred C. Boyce, Roy H. Kelly, William H. Brudges, Fred Rooney and S. R. Olson.

STANFORD G. BLANKINSHIP
President

President's Message

Grover Keeth delivered the annual president's message as follows: It is my privilege to call to order the 24th annual convention of our assocation. When we express this as a quarter of a century it seems a long time, but I have been a member for 15 of the 24 years and have served you as an officer for eight of them, and it does not seem so long when I look at them in retrospect.

In those 24 years we have had a steady and healthy growth and to the best of my knowledge there has never been anything but harmony. This shows that our founders built well. Since we have survived these 24 years without developing any of the diseases that are wont to attack such organizations as ours, it is my prediction that we will continue to prosper.

Under present war conditions it is common in making remarks such as mine, to dwell at length on a discussion of the trials and tribulations with which we have to contend. You all know what these are without my telling you. My only comment on this subject is—Sherman was right!

Instead, I am going to say some things about the Superintendents' Association, that have been on my mind for a long time.

When you honored me by making me your president I thought that I was fairly well versed in my knowledge of this association. I soon found that there was a great deal I did not

know about it. As I strived to continue the good work of my predecessors I rapidly found there were many things I did not know and I believe the greatest of these is "The Possibilities of our association".

I wonder how many of you have ever taken the trouble to apply a reading glass to our emblem and see what the words inscribed thereon are. Well, I never did until this year—and what did I find as the foundation stone?—Confidence. Webster gives several definitions of this word. I prefer the following: "State of mind characterized by reliance in one's self". How can this be obtained? By knowledge of what we are trying to do? Where can we get that knowledge? By attending meetings of the Superintendents Association—but, you must do something else than attend. To illustrate, the story is told of a festival to be held in a certain village. A wine cask was placed on the village green and each citizen was asked to put two quarts of wine in the cask before the appointed time. When the spigot was opened, water ran out. Each villager had said to himself, "Let the other fellow donate his wine—I'll keep mine". So it is with our meetings. Bring something and I'll guarantee you will get it back with interest.

Association Has Opportunity for Service

In no association of which I have knowledge, is there the opportunity to do things for its members that there is in our association. According to Dard Hunter we are engaged in the manufacture of a product that has been made since 105 A. D. and I call your attention to the fact that paper was first made in China. Therefore, Daddy Boyce was correct when he organized the Ancient Order of Chinese Paper Makers. Papermaking began as an "art" and in my humble opinion it is still an art to a considerable extent in spite of able assistance from our Technical Associates. A friend of mine once remarked that he could stand on the corner and whistle, and one hundred men would appear who could build a plant—but that he would have to whistle long and loud before he found one man who could make it run. Somebody must have done a lot of whistling because we are a group of over eight hundred men who can and do make mills run. What I hope to see is a service rendered that will make them run better.

To begin with we are a select group. One must be a superintendent to be eligible for membership.

Association at Cross Roads

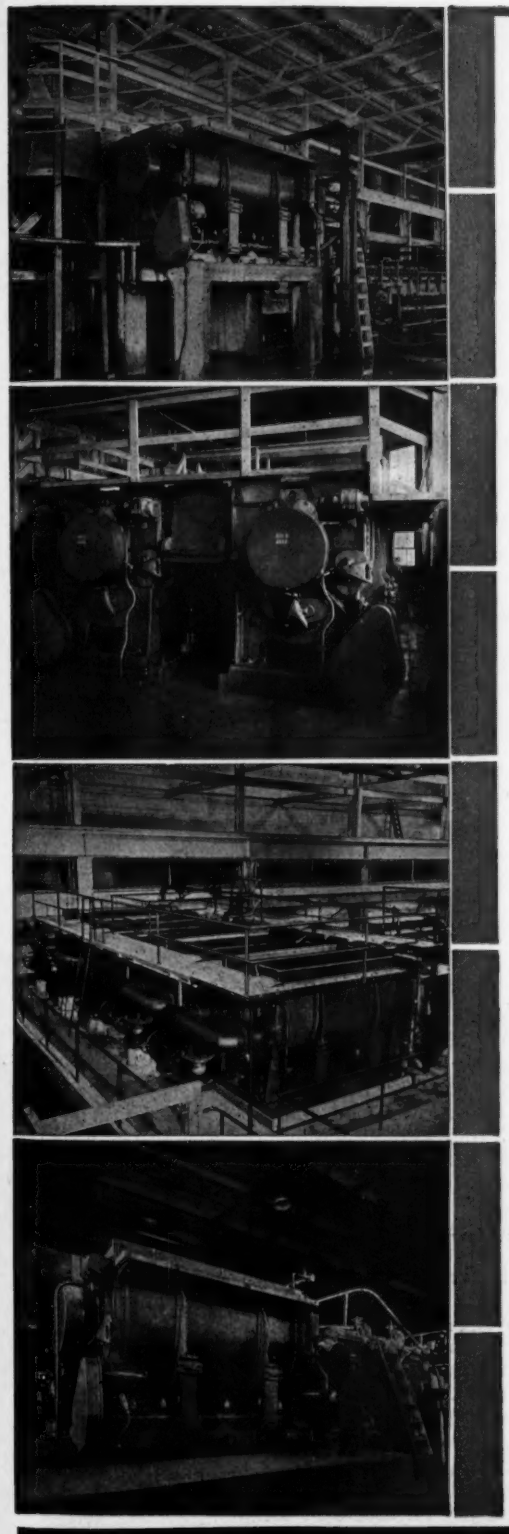
As I see matters, our association is at a cross roads, and this remark is no reflection on past performances, rather it is a compliment, because to survive 24 years somebody must have been building pretty well.

Two paths lead from these cross roads. By following one of them, we would continue as we have, to hold our annual get-together, renew old acquaintances and go home, and continue to watch TAPPI grow and pass an annual budget of $65,000. Or—we can take the other path and render a real service to our members. I prefer the latter, and I think you men will also. I have tried to follow this path as far as my time would permit. However, I rapidly found out that it is beyond the ability of a volunteer president to see that our members get the service from this association to which I feel they are entitled, and which I feel the association should render to them.

It is my firm belief that if we render to our members the service that I think should be rendered them, we will soon have an outstanding organization and that paper mill superintendents who are not members will not be rated as real superintendents.

There was appointed at the final meeting at Grand Rapids, a committee on Labor which is a question that should be studied by our organization as we are the ones who handle labor. Those of us who were

Annual Banquet American Pulp and Paper Mill Superintendents Association



80,000,000 POUNDS of PAPER Are Passing Through BIRD SCREENS TODAY!

—*and every day;* an essential factor in the continuous production of the clean, well formed paper on which America depends.

Be sure *your* Screens are at all times in shape to do their best. Check with us if we can help you to keep them that way.

BIRD MACHINE COMPANY
SOUTH WALPOLE • MASSACHUSETTS

appointed on this committee little realized the task that was placed before us. We have worked hard, have spent a sizeable amount of the association's funds, have met many obstacles, but I believe that when our report is finally presented you will have in your hands a guide for labor relations that will be of great assistance to you.

Earlier in my remarks I mentioned that there were many things that I did not know about this association previous to taking the office of president, and not the least of these was to get better acquainted with Bob Eminger and Mrs. Eminger. I can assure you that if you have not had the opportunity to get acquainted with this grand couple as I have, you have missed something. I think most of you know of the long and serious illness Bob had during the past year. I know you will all join me in congratulating him on his recovery and hoping that he may have many years to enjoy the profits of a well spent life.

Training Within Industry Plan

An important feature of the morning session on Tuesday was an explanation and demonstration of Training Within Industry, by Sterling W. Mudge, District Director, Training Within Industry Service, War Manpower Commission, New York. Mr. Mudge before joining the WMC was director of training with the Socony-Vacuum Oil Company.

Training within industry, the speaker said, started in an advisory capacity. In industries changing their products, workers must be trained to change the character of their work. This entails the training of workers to develop new skills most completely without waste of time. People are the most important factor in every business, for they are responsible for the success of the business. Executives, in analyzing daily duties will find that most problems are caused by people. The development of workers within the organization is, therefore, vital to the progress and success of the concern.

Superintendents and those in supervisory positions should possess leadership, Mr. Mudge declared. An important quality in leadership is planning. The training offered by the War Manpower Commission consists in breaking down a job into its parts and teaching new workers to perform the new operations

RAYMOND S. BARTON
First Vice President

NILES M. ANDERSON
Second Vice President

quickly, accurately, safely and conscientiously. The WMC has issued a booklet on Job Methods Training. In its advisory service of job instructor training, trainers are supplied free of any charge, to plants desiring their services.

The WMC plan of training, the speaker said, has been successful in over 800 plants. The principles can be applied to practically all organized productive effort, even in hospitals. It develops the opportunity of the worker who knows a job, to pass this knowledge on to other workers, who are available for performing the same type of work. It requires from four to five days to properly instruct a trainer for the two, five-hour sessions required.

At Tuesday's luncheon, in the grand ballroom, S. D. Kirkpatrick, Editor of *Chemical and Metallurgical Engineering*, New York, was the featured speaker. A summary of Mr. Kirkpatrick's address follows:

Mobilizing Science and Technology

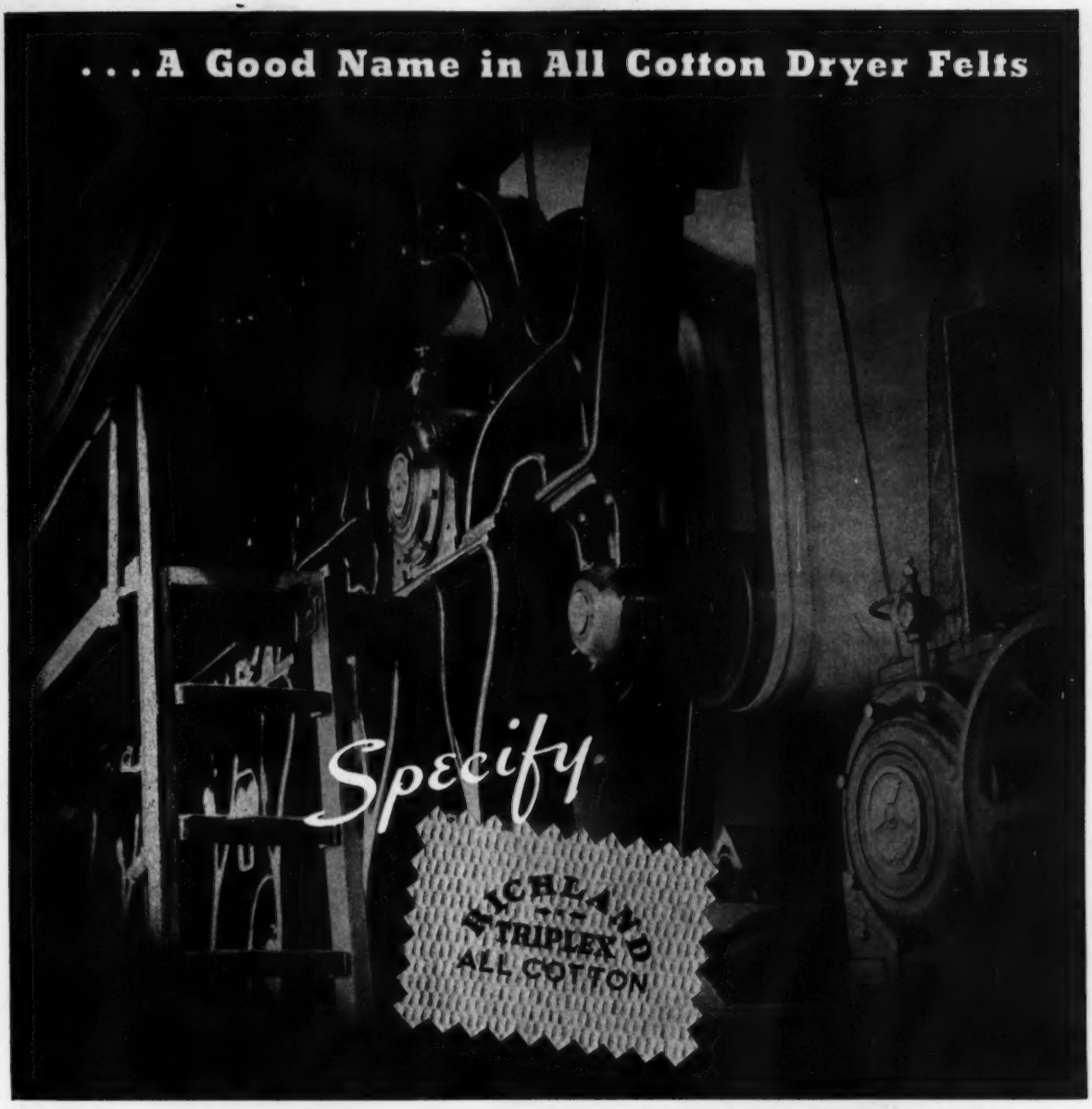
Industry's contribution to the successful prosecuzation of this war resulted from an all-out mobilization of her manpower, materials and plant facilities. Not so well known, however, is the contribution of the scientists and technologists who have been at work developing new products and perfecting more efficient processes for war production. This has made it possible to turn out military explosives and munitions of all kinds in far greater volume than was deemed possible even a year ago. Essential civilian services have benefitted from replacement materials that are taking place of scarcer metals and other critical materials.

New plastics, synthetic resins and rubber, plywood, pulp and fiber compositions, are assuming greater importance in both war and civilian supplies.

Research and developmental activities having to do with the origination and improvement of the actual weapons of war are largely concentrated in the Office of Scientific Research and Development and its subsidiaries, the National Defense Research Council and the Committee on Medical Research. Parallel activities in the field of war production are now centered in the newer Office of Production Research and Development in the War Production Board.

More recently Senator Harley M. Kilgore and others in the subcommittee of the Military Affairs

. . . A Good Name in All Cotton Dryer Felts



LONG experience with RICHLAND Triplex has given many paper men a knowledge of what to expect from these heavy duty all cotton dryer felts. They know that the highly uniform yarns from which they are woven make them wear longer. They have learned that these sturdy felts have a high degree of porosity . . . that steam consumption with them is low . . . that their shrinkage and stretch has been reduced to a minimum. It is the confidence that these men have in RICHLAND Triplex that causes them to specify these all cotton dryer felts time and again. And it is this same confidence that helps to inspire the care with which RICHLAND Triplex dryer felts are made.

MT. VERNON WOODBERRY MILLS, INC.

TURNER HALSEY COMPANY
Selling Agents
40 WORTH STREET ★ NEW YORK, N. Y.
CHICAGO · NEW ORLEANS · ATLANTA · BALTIMORE · BOSTON · LOS ANGELES · SAN FRANCISCO

Committee have proposed very drastic legislation to mobilize—perhaps even regiment—all of our technological resources, human as well as material. This proposal would affect every technical man in every laboratory and development plant in American industry. It is a matter that should have careful attention and perhaps appropriate action by the American Pulp and Paper Mill Superintendents Association.

The speaker, Sidney D. Kirkpatrick, is a consultant for the Chemical Division of WPB and the Engineering Training and Allocation Division of the War Manpower Commission. He is a member of the Chemical Referee Board of the OPRD and of Advisory Committees to both the Chemical Warfare Service and the Quartermaster Corps of the U. S. Army. He is therefore in an unusually favorable position to observe developments of vital interest to technical men and to the industries that are participating in the war effort.

At a general conference session on Tuesday afternoon, E. W. Tinker, executive secretary, American Paper and Pulp Association, New York, spoke on Raw Materials—Pulp, Pulpwood and De-inked Papers, as follows:

Address of E. W. Tinker

Consideration of the immediate situation of the pulp and paper industry as related to its raw material supply necessitates something of a review of circumstances that have led to the extremely critical condition of the industry at this time.

Paper has been a cheap and expendable commodity. Its use has become so integrated with modern civilized life, both economic and social, that it is taken for granted as the air we breath and the water we drink. Its very plentifulness and cheapness have led to misconceptions that bid fair to create another national scarcity and resultant national injury. The effect upon the industry and its multifarious dependent industries is not pleasant to contemplate. The important fact to judicial individuals seriously considering the subject from the standpoint of national necessity is that when tonnage items produced by the industry are analyzed, it is not possible to make appreciable savings without very serious effects upon our national economy and upon the war program in particular. The general conception that paper in the

RAYMOND F. BENNETT
Fourth Vice President

main and in vast quantities is not absolutely necessary to the war program has influenced decisions and actions in Washington without regard to industry advice and recommendations with the result that unless immediate remedial steps are taken, grave difficulties will be created.

It has been the considered policy of the American Paper and Pulp Association not to create artificial shortages or encourage speculative buying through predictions based upon mere assumptions. It has been an adhered to policy not to create pressures that would add to confusion. However, the industry has now reached a position where the hard and indisputable facts must be faced. It is true that remedial action, if taken immediately, could prevent inevitable shortages of necessary items but it should be understood that only by immediate action can disastrous shortages be avoided. Enthusiasm of Washington organizations to win the war offers cold comfort in the midst of the administrative chaos that precludes consideration of facts and constructive action that might still avoid pending disastrous results.

Fundamentally, the industry's position will be determined by the availabiilty of an adequate and suit-

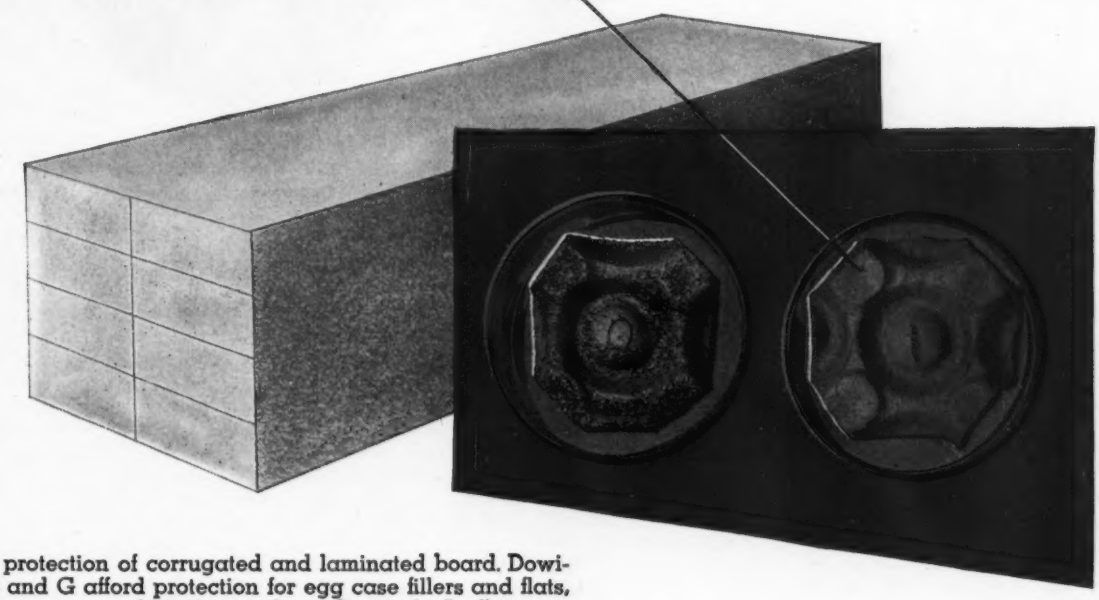
HOMER H. LATIMER
Third Vice President

O. W. MESSNER
Fifth Vice President

How to make paper products mold-resistant!

Paper products susceptible to mold growth—such as egg case fillers and flats and soap wrappers—are effectively made mold-resistant with Dowicide. Numerous other paper products, especially those used for wrapping or packaging materials having high moisture content, are also given this needed protection against damaging fungous growths.

Dowicide products most widely used by the paper industry are Dowicides G, B, A and 1. Dowicide G finds application



in the protection of corrugated and laminated board. Dowicide B and G afford protection for egg case fillers and flats, soap wrappers, and similar products. Dowicide A offers protection for specialty products, such as gummed tape. Dowicide 1 is used to prevent mold growth on waxed outer wrappers.

Seventeen Dowicide products are manufactured by The Dow Chemical Company . . . each one designed to do a specific job in combating fungi and bacteria. They are easy to apply —economical and effective to use. For more complete information on mold-resistant paper products request Dowicide technical bulletin No. 45.

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York • Chicago • St. Louis • Houston • San Francisco • Los Angeles • Seattle

OTHER USES FOR DOWICIDES: Preventing stain and decay on pulp logs; preserving lap and pulp stock; lengthening felt life and lowering production costs; protecting paper products from decay and termite attack; controlling slime conditions; reducing structural and paint maintenance costs.

DOWICIDE

GERMICIDES AND FUNGICIDES

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY

able fiber supply. The availability of this fiber supply is contingent upon action to assure, without question, the production of an adequate supply of pulpwood. If definite or positive action is not taken to provide for this and the required manpower made available, then beyond question the country is faced with injurious shortages that will be extremely difficult if not impossible to overcome. Perhaps it is only by such unfortunate and painful circumstances that the essentiality of paper can at long last be brought home to the responsible authorities. There is no question of the industry's ability and capacity to produce adequate supplies but under a regimented war economy it can only do so through a fully coordinated program in Washington. Such a program involves not only the establishment of production goals but the integration of production plans with practical considerations of the availability of labor, the establishment of price structures that will make production possible and, above all, cooperation and understanding between governmental planning and administrative authorities. If remedial action is not had in this particular case it will stand as an indictment of administrative effectiveness in the prosecution of the war.

It is unnecessary to outline the situation with regard to pulp supplies and the declining inventories. The action of the Pulp Allocation Committee of the War Production Board, bears witness to the fact that the situation is extremely acute and growing precipitately worse. The industry has and does face many difficulties but they can be overcome with the one exception of our shortage of pulpwood. There is adequate timber but if manpower is not provided to make the wood available, a situation with national implications will inevitably arise.

Steps Taken for More Pulpwood

Several moves have been made. The Department of Agriculture has cooperated in the use of its vast organization of county agents to encourage the production of more farmer wood. Mr. Donald Nelson has issued a public statement that the production of more pulpwood was of great interest to the War Production Board and in the interest of winning the war. Publishers have developed material that is being distributed through the four and a half million circulation of farm journals and magazines, emphasizing the necessity for the production of more pulpwood.

George W. Craigie
Field Secretary

Robert L. Eminger
Secretary-Treasurer

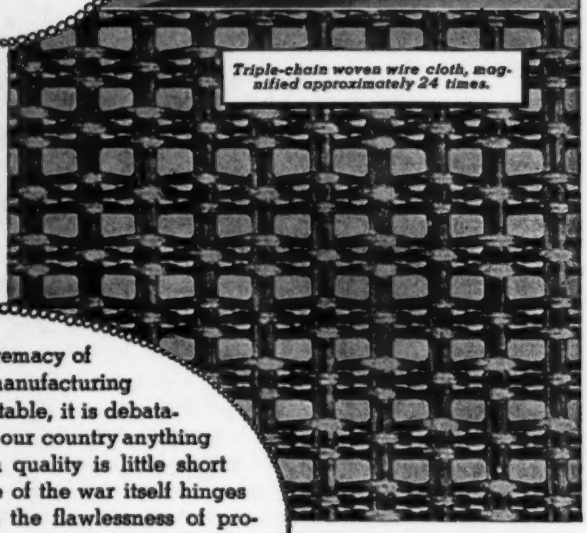
A national committee has been organized within the industry to sponsor a broad and aggressive campaign of publiicty. The use of prisoners of war, internees and conscientious objectors, as woods labor, offers possibilities and efforts are being made to develop plans along these lines. All of these efforts are along the right line and aimed at a common objective. It is hoped that favorable results will be obtained but nevertheless, under the best of conditions, only clear-cut recognition of the problem and a combined and immediate aggressive attack upon it by the constituted authorities will relieve the situation to the necessary degree.

As a definite part of the picture with relation to fiber supply, the use of secondary fiber on the part of the industry is called for. Plans are being developed through the Salvage Administration to assure that their cooperation is obtained in providing adequate supplies to meet the inevitably increased use. Mill management must face this issue and the customers of the industry must recognize that the high standards of products that have been established during times of plenty may have to be sacrificed. The industry has never before faced a comparable situation. If the problem is not solved with the result that essential uses of paper are not supplied, then in all probability the industry will be subject to further government regimentation with the added cost of restrictions and curtailment of production that always have and always will accompany such regimentation. It is an industry problem but it requires understanding and cooperative action on the part of all agencies interested in the smooth operation of the war production program. Under existing circumstances the industry cannot save the situation.

Pulpwood Stocks Declining

In presenting this situation to you I have refrained from the use of statistical information. However, this information is currently available to all of you and no doubt you are familiar with the trends that are so apparent to the most casual observer. The fact that pulpwood inventories are declining at a rate exceeding 130,000 cords per month speaks for itself. As applied to the paper mill superintendents and the technologists available to the industry, a challenge is

Edge modifications permit custom-building to fit each machine.



Triple-chain woven wire cloth, magnified approximately 24 times.

If the supremacy of quality in the manufacturing field was ever debatable, it is debatable no longer. To offer our country anything less than the utmost in quality is little short of traitorous. The outcome of the war itself hinges in no small measure upon the flawlessness of products not even used in immediate warfare. Here at Lindsay we consistently finish seams with 20,000 metal-to-metal joints every one of which, day in and day out, must be virtually perfect. All this in order that paper, so vital to our war's success, may be similarly perfect.

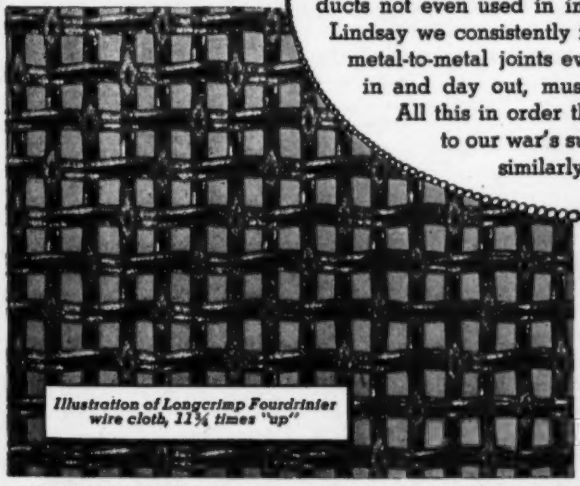
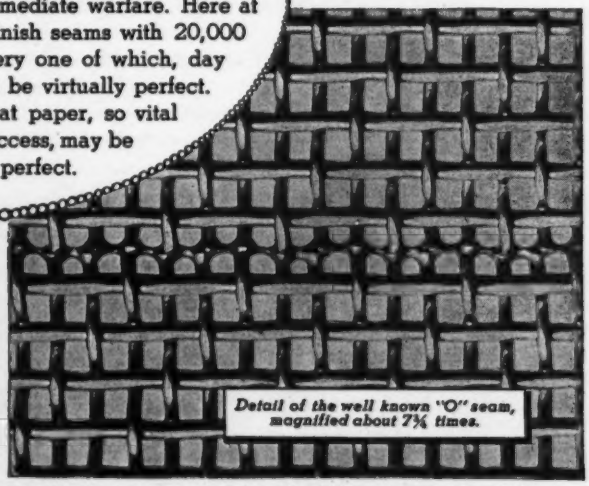


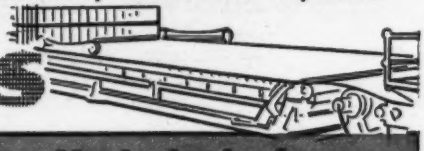
Illustration of Longcrimp Fourdrinier wire cloth, 11¾ times "up"



Detail of the well known "O" seam, magnified about 7¾ times.

THE LINDSAY WIRE WEAVING COMPANY • ASPINWALL AVENUE, CLEVELAND 10, OHIO

Serving the Paper Industry Since 1903



Lindsay **WIRES**

FOR PAPER MILLS

presented—a challenge requiring the abandonment of traditional furnishes and the use of every conceivable process and all of the ingenuity and technical skill available to produce that which the country requires. At times it has seemed to me that individuals working in the paper and pulp industry carried doubts in their minds if they were making their maximum individual contribution towards winning the war. Modern warfare involves practically our entire economic structure with the exception of luxuries to which we have become accustomed. The latter are rapidly fading out of our lives. In our regimented economy each individual serves best if he serves in the field where his particular skills can be most effectively applied and where diligent effort will assure the production of necessary products. Make no mistake about it, that paper and paper products fall in this category. If you doubt it I am sure a little reflection will convince you.

In conclusion let me say that 20,000 woods workers made available in the five major forest regions of the United States would solve our insurmountable problem. I suppose this represtnts a swing shift in any of our good sized war production plants. If this medium of manpower which in numbers could be extracted from Washington and not be noticed, is not immediately available, a shortage crisis is inevitable and a vast industrial structure will be partially paralyzed for the duration.

Following Mr. Tinker's address a panel discussion on Pulpwood Supply was held, with Mr. Tinker, coordinator. Panel members were as follows:

S. G. Blankinship, Mill Mgr., Port Royal Pulp and Paper Co., St. John, N. B.; H. E. Brinckerhoff, Executive Secretary, American Pulpwood Association, New York; Kendrick Burns, Mgr. Woods Dept., S. D. Warren Company, Cumberland Mills, Maine; Arthur Schmalz, Asst. General Supt., Thilmany Pulp and Paper Company, Kaukauna, Wis.; and Niles M. Anderson, Ontonagon Fiber Corporation, Ontonagon, Mich.

The program on Wednesday included an address on "Women in Industry", by Miss Ellen M. Davies, Personnel Director, Chase Brass and Copper Company, Waterbury, Conn. Miss Davies spoke in part as follows:

Address of Miss Ellen Davies

Many of you have employed women on certain occupations in your plants for years. Within the past 12 or 18 months however you have been faced with a new problem—namely the extension of your employment policy to include women as replacements on jobs which have traditionally been considered only suitable for men. Two factors have entered into the disclosure of this new need; one, the withdrawal of men from industry into the armed forces; the second, the unprecedented expansion of many plants.

The rapid induction of large numbers of women into war plants presents many new problems to the employer. These problems can be met through the four following steps: (1) preparation for and the (2) recruitment, (3) training and (4) retention of women workers. Unless these four phases in the program for the utilization of womanpower are properly organized and developed by the employer, his program is very apt to bog down somewhere along the line. Let me develop these steps for you briefly.

It is my belief that the most important step in placing women on men's jobs is to "sell" the supervisors in the plant on the program. I cannot tell each one of you how this is to be done in your plant; you know your supervisors better than anyone else could hope to. The most effective approach that can be used in most instances is that of putting the facts before these supervisors and asking them for their complete cooperation in meeting a tight situation. These facts are arrived at from your Manning Tables or replacement schedules, whichever you may be using, and by studying your plant expansion program.

As soon as you have enumerated your potential replacement requirements you should review job analysis records and job specifications. I am assuming that today most organizations already have some form of job analysis and job specifications but these should be revised with a view to discovering where women can be used. You will be surprised to find how many jobs really can be done equally well by women; the only exceptions will be those which require long years of apprenticeship such as toolmaking, pattern making, die-casting, model making, etc., or occupations where heavy lifting or unusual physical exertion are the essential part of the job. Many jobs which ordinarily require long training periods can be broken down into simple elements; consequently short term training periods will be found sufficient. This is where accurate analysis is an absolute essential and correct job specifications are of the utmost importance because it is upon this basis that your wage scales will depend.

Women in Many Kinds of Jobs

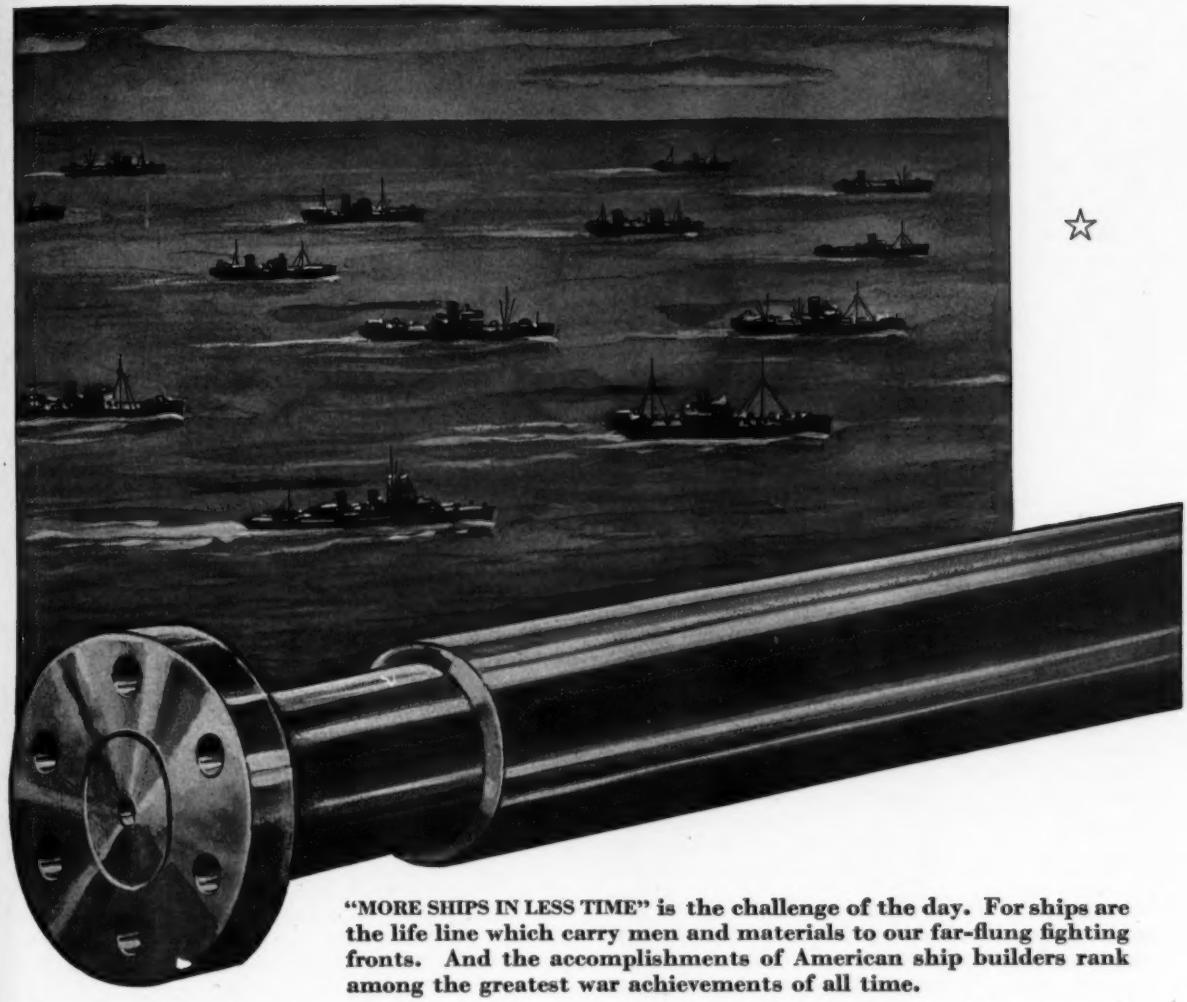
Many jobs can be taken over "as is" by women. For example in our artillery case division women are now being used as inspectors at the New Britain and Brown and Sharpe and other machines on exactly the same job which men are doing. As the men are called, we up-grade inspectors already trained on tapping and tapering and routine and gauging at the bench to these more responsible jobs at the machines. It gives the women an incentive to work hard and to do a good job and it also makes for better morale to give the more desirable jobs to those already on the payroll.

In the tool grinding department only the very simple operations are assigned to the women learner grinders at first but as they become more proficient more and more difficult assignments are made. We have been using women as lathe and milling machine operators for almost two years and find them very competent and dependable.

It is obvious to even the least informed individual today that in many communities there are not enough men available to do all the work which needs doing—your foreman knows this—what he often does not realize, however, is just how many men he will find himself short of by, let us say, September or December 1943 and from which jobs he will lose the most men. He also knows which jobs take the longest training time. When these facts are presented to him graphically the foreman can be counted upon not only to accept women workers, but to go one step further and assist in determining how many jobs women can do in his department.

One of our own foremen was being very hard to sell on the use of women as jitney drivers and tow-motor operators. He held out against it in spite of the fact that weekly his men were leaving for the Army and our transportation system was being tied up more and more. He finally agreed to try "one"—

SHAFTS *for our Ships of War...*



"MORE SHIPS IN LESS TIME" is the challenge of the day. For ships are the life line which carry men and materials to our far-flung fighting fronts. And the accomplishments of American ship builders rank among the greatest war achievements of all time.

Today, we are proud of the part we are playing in this great ship building program. For, here at Jones, we've been under way at full speed ahead, for over a year, in supplying propeller shafts for cargo ships. And we are also devoting every ounce of our energy and the full measure of our skill in building parts for other war equipment until victory is won.

Jones

GEARED FOR WAR PRODUCTION

E.D. JONES & SONS COMPANY-PITTSFIELD, MASS.

Builders of Quality Machinery for Paper Mills

the next week we sent him several more. At the end of the month requisitions for help in his department were reading "women only". Once foremen have become accustomed to having women in their departments, and if the women have been properly selected and properly placed to begin with, they are enthusiastic in their praise of their skill and attainments as workers.

The third and fourth steps in preparation for a womanpower program are those of breaking down the jobs so that the principle steps in the operation are set down and those elements unsuitable for women are separated, and the setting up of job requirements. Frequently the work area itself must be re-arranged because "women's average height is five inches less than that of men; women's reach is less than men's; women's fingers and hands are smaller. Women are more susceptible to varicose veins, consequently standing is more difficult and harmful for women than men. Adjustments may include lowering benches, installing adjustable seats, changing position of machine controls, adding guards to machinery." (U. S. Dept. of Labor, Women's Bureau Bulletin.)

Women Require Special Consideration

Handling material may have special hazards for women because women cannot lift as much as men since they average about half the muscular strength of men. Experience shows that the average woman should not lift continuously over 25 pounds—at preferably not more than 10 lifts per hour. Employment for heavy work should be on the basis of careful physical examination. In addition to this precaution women as well as men should be taught safe methods of lifting. Heavy lifting and carrying should be done by machine power.

When job requirements for women are written up for use of the employment interviewer special consideration should be given to the following conditions:

1. The degree of physical exertion required.
2. Knowledge or skill required, including the use of special mechanical aids.
3. Exposure to moving machinery or other operational hazards or discomforts. For example, in our own plant one of the steps in the manufacture of cartridge cases is the immersion of the cases in an acid bath. The fumes coming off the bath are unendurable for some workers, consequently this condition is carefully explained to workers before they are assigned to this occupation.
4. Special consideration must be given to the amount of sitting or standing involved in the operation of the job.
5. Unusual physical requirements such as height, arm extension, weight, good eyesight must also be kept constantly before the interviewer and placement officer.

The War Labor Board has been very definite in its stand that women are to be paid wages equal to those of the men for equal skill and equal production. Of course, where there has been actual and extensive re-engineering of a job to accommodate women, it is possible and suitable to set-up rates that are just and fair. This includes rates for training as well as actual production; here again rates must be equal for men and women if the equal skill and production are expected of them. If you have a union in your plant, be sure that it is in accord with your wage plan *before* you put it into operation or you may run into an unpleasant situation.

I have spent quite a lot of time with you on this question of preparation for the employment of women because I believe it to be the most important phase of the entire womanpower utilization program.

The second essential step in the program is that of *recruitment.*

Classification of Women Workers

The classification of women who must be recruited fall loosely into five groups:

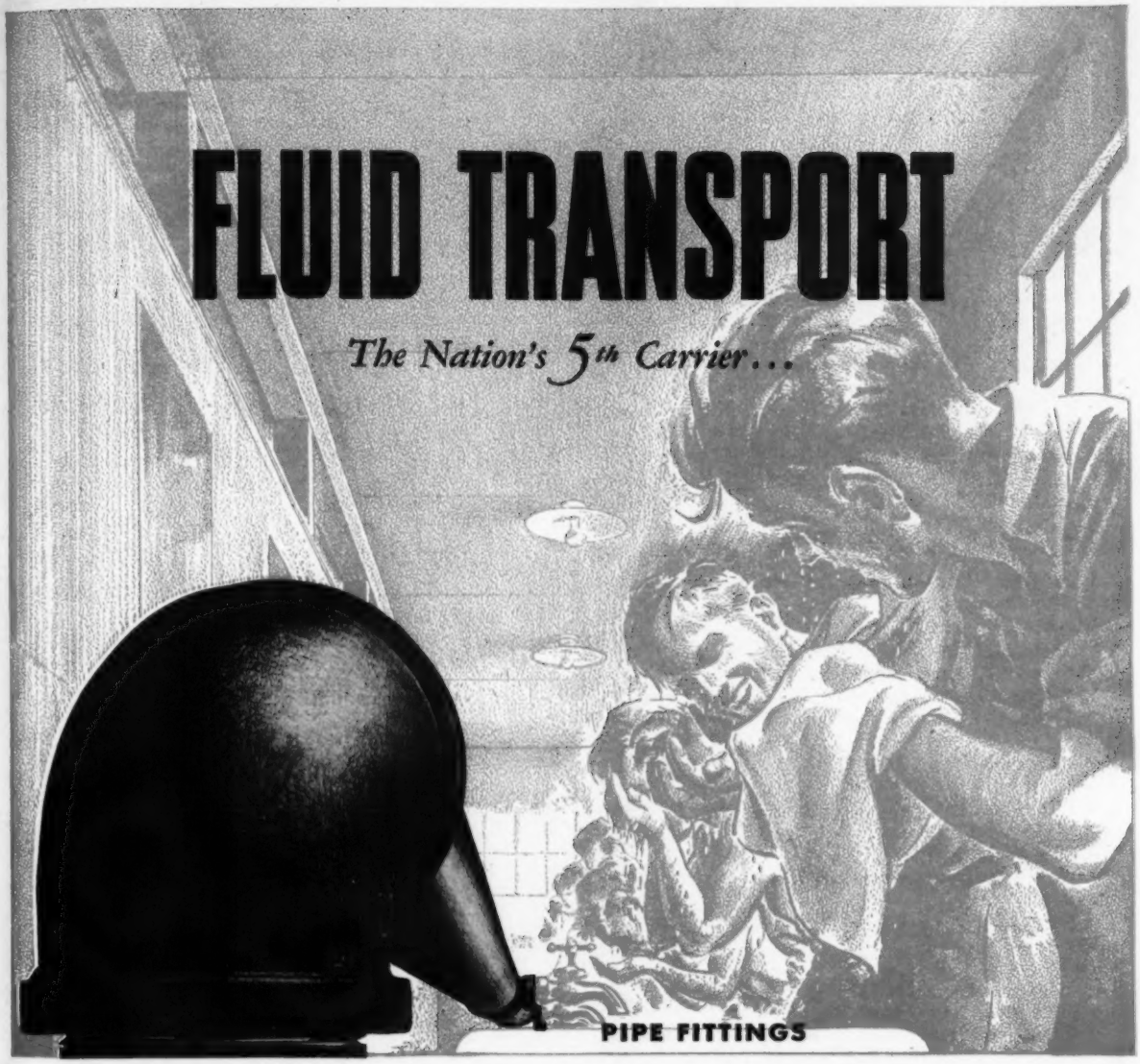
1. Young women who each year come as new recruits to industry. These are high school graduates, business school graduates, graduates of technical and vocational schools, and those girls who for one reason or another were not able to complete their school work.
2. Married women without dependents, as well as married women (with or without dependents) whose husbands are in the armed forces. This latter group for the most part furnishes a highly desirable woman employee because of her personal interest in the rapid and successful conclusion of the war.
3. Older women who have been successful homemakers, teachers, librarians, secretaries, and who now feel that they should reenter the industrial and technical services. From this group some of the best supervisory and upgrading material can be selected.
4. Women from minority groups such as aliens and others.
5. Women who may be physically handicapped and partially disabled. The members of this group require very careful selection, training, and placement, but no employees will render more devoted service than these.

I should like to have time to discuss the problems connected with child care, special services, counselling programs and recreation programs but feel that you have already been more than indulgent in your attention. Perhaps something on these problems will be brought out in the panel discussion.

Summary of Major Requirements

Let me summarize in conclusion as follows:

1. A careful job inventory will disclose jobs where replacement of men will be required because of the acute need to enlarge the Armed Forces.
2. Careful and accurate job analysis and job specification will disclose jobs where women can and must be used.
3. Women workers must be selected carefully with regard to their physical, mental and emotional capacities.
4. Absenteeism will result if women have a transportation problem which has not been met, or if care of their children has not been arranged for.
5. Unions, supervisors and male workers must be sold on the idea of women workers before they are inducted into war jobs.
6. Training programs must be worked out to meet the emergency needs and women workers must be trained early enough so that there is a minimum loss of production.
7. Women should be paid at the same rate as men for equal production and skill.
8. Plant facilities and working conditions must be such as to attract and hold desirable women workers and should be arranged for *before* women are employed.



WASHING 50,000 FACES is a major job of FLUID TRANSPORT. Imagine the number and variety of pipe fittings needed to install water, heat and sewerage systems in an army camp large enough to house and train many thousands of recruits.

Pipe systems like that define the true function of Grinnell FLUID TRANSPORT. Included are every type of pipe fittings, from the tiny fitting for ¼" tubing to the extra heavy welding fitting for a 24" steam power line.

For new war construction, or maintenance and repair of existing piping, call Grinnell Company, Inc., Executive Offices, Providence, Rhode Island. Plants and offices throughout the United States and Canada.

GRINNELL

WHENEVER **PIPING** IS INVOLVED

9. Finally the hours of work must be so arranged that women will be able to carry on in war jobs for years if need be, and that everything necessary must be done to sustain the morale which is so essential if we are to conclude our war effort in Victory.

At the conclusion of Miss Davies' address a panel discussion on "Women in Paper Mills" was held, with A. S. Anderson, personnel director, Champion Paper and Fibre Company, Hamilton, Ohio, co-ordinator. Panel members were as follows:

Miss Ellen M. Davies, personnel director, Chase & Copper Company, Waterbury, Conn.; Oscar Stamets, personnel director, Riegel Paper Corp., Milford, N. J.; Edward A. Jackman, assistant personnel director, Oxford Paper Company, Rumford, Maine; Ralph H. Kehl, personnel superintendent, Kimberly-Clark Corp., Niagara Falls, N. Y.; E. G. Amos, Secretary Industrial Relations Committee, American Paper and Pulp Association, New York; and C. G. Adams, personnel director, International Paper Company, Glens Falls, N. Y.

Wednesday's Group Meetings

Wednesday morning was devoted to group meetings as follows:

BOARD

Chairman—Ollie W. Messner, Robertson Paper Box Company, Montville, Conn.

1. "Recent Developments in the Rubber Crisis"—A. C. Lutz, B. F. Goodrich Rubber Company, Akron, Ohio.

2. Sound Film "How Industry Uses Rubber"—A. C. Lutz.

3. "Current Operating Problems and Developments"—Fred S. Crysler, Container Corporation of America, Wabash, Ind.

Each of the above was followed by a round-table discussion.

Subjects discussed were: Felts and Stock Preparation Equipment.

FINE PAPERS

Chairman—Homer H. Latimer, Champion Paper and Fibre Company, Hamilton, Ohio.

1. "Tub Sizing"—Samuel R. Olson, Champion Paper and Fibre Company, Hamilton, Ohio.

2. Round-table Discussion on General Paper Mill Problems.

3. Discussion on Post-War Planning for Paper Mill Needs.

4. "Rubber and Rubber Synthetics"—A. C. Lutz, B. F. Goodrich Rubber Company, Akron, Ohio.

Subjects discussed were: Paper Machines, including wires and Rubber and Rubber Synthetics.

COATED PAPERS

Chairman—Loring W. McFail, Oxford Paper Company, Rumford, Maine.

The Problem—Use of Casein is drastically restricted. Suitable substitutes are likely to be restricted. Labor is scarce.

Possibility that use of Coated Paper may be drastically cut.

Panel Discussion Centered Around Question—"How shall we meet this emergency?"

Subjects discussed were: clays, starches, fillers and colors.

KRAFT

Chairman—William M. Cary, National Container Corporation, Jacksonville, Fla.

1. "Wet Strength Treatment"—Ralph Kumler, American Cyanamid and Chemical Company, New York, N. Y.

2. "The Use of Waxes and Emulsions in the Waterproofing of Kraft Papers"—T. E. Dial, Socony-Vacuum Oil Company, Inc., New York, N. Y.

Each of the above was followed by a round-table discussion.

Subjects discussed were: chemicals and pumps.

The New Officers

At the annual business meeting held on Wednesday afternoon the following officers were elected:

President, Stanford G. Blankinship, Port Royal Pulp & Paper Company, Ltd., New York.

First Vice-President, Raymond L. Barton, Michigan Paper Company, Plainwell, Mich.

Second Vice-President, Niles M. Anderson, Ontonagon Fibre Corporation, Ontonagon, Mich.

Third Vice-President, Homer H. Latimer, Champion Paper & Fibre Company, Hamilton, Ohio.

Fourth Vice-President, Raymond F. Bennett, Ecusta Paper Corporation, Pisgah Forest, N. C.

Fifth Vice-President, O. W. Messner, Robertson Paper Box Company, Montville, Conn.

Secretary-Treasurer, Robert L. Eminger, 54 North Main Street, Miamisburg, Ohio.

Field Secretary, George W. Craigie, 176 Mason street, Cumberland Mills, Maine.

Annual Banquet

Preceding the annual banquet on Wednesday a get-together party was held at 6 P.M. in the west ballroom, with the Allied Industries acting as hosts. A special Ladies' Committee, including the wives of officials of the association, acted as hostesses.

The banquet, held in the grand ballroom at 7.30 P.M., was informal. United States Senator Ralph O. Brewster, from Maine, was the featured speaker. The Senator is a member of the Committee on Naval Affairs and of the Truman Committee. In his address entitled "Progress Report," the speaker had praise for much which the Administration has accomplished but criticized the administration for permitting the praiseworthy work of Secretary Hull to be obscured by other officials close to the President.

Grover Keeth, retiring president, was presented at the banquet with the Past President's Jewel and the L. D. Post Trophy. Retiring chairman V. S. Denison, of the Industrial Affiliates Committee, was presented with a token of appreciation by the officers of the association.

Music was furnished by Earl Carpenter and his Miami Biltmore Orchestra.

Thursday's Group Meetings

Group meetings on Thursday morning were as follows:

CHEMICAL PULP

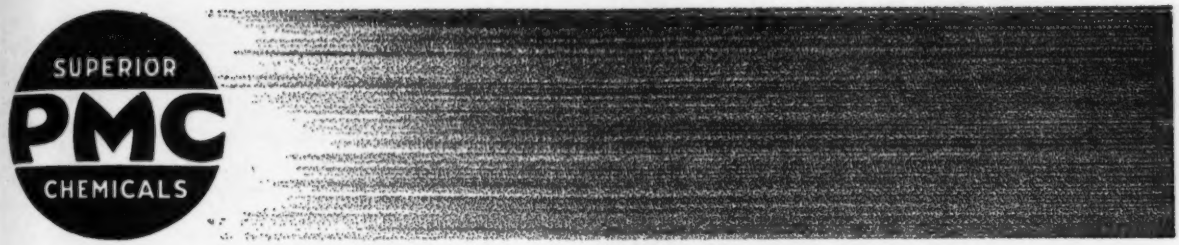
Chairman—Luther C. H. Beighey, Hammermill Paper Company, Erie, Pa.

1. "Modern Trends in Washing Equipment"—John H. Noble, Improved Paper Machinery Company, New York, N. Y.

2. "Bleaching"—Ferri Casciani, Niagara Alkali Company, Niagara Falls, N. Y.

3. "New Developments in Screening"—Fitz H. Becker, Bird Machine Company, South Walpole, Mass. Each of the above will be followed by a round-table discussion.

4. Round-Table Discussion on Acid Making.



CONTINUING RESEARCH SINCE 1907 has steadily improved the quality and efficient application of PMC chemicals. These products, plus Hercules trained technical representatives, offer paper makers outstanding service.

PAPER-MAKING CHEMICALS

- Paste Rosin Size
- Dry Rosin Size
- Paracol* Wax Emulsions
- Alum
- Foam Killers
- Silicate of Soda
- Sulphonated Tallow
- Oil Soaps
- Felt Cleaner & Detergent
- Clay
- Acids
- Gloss Oil
- Caustic Soda
- Soda Ash
- Purified Cotton Linters
- Ultramarine Blues

COATING CHEMICALS

- Satin White
- Casein
- Casein Solvents
- Soda Ash
- PMC Flake Caustic
- Tri-Sodium Phosphate
- Borax
- Sulphonated Castor Oil
- Hercules Steam-distilled Pine Oils
- PMC Eveners
- Formaldehyde

*REG. TRADE MARK

The nearest PMC office is ready to serve you.

PAPER MAKERS CHEMICAL DEPARTMENT

HERCULES POWDER COMPANY
INCORPORATED
KALAMAZOO ★ MICHIGAN

Stoneham, Mass.
Holyoke, Mass.
Albany, N. Y.

Wilmington, Del.
Atlanta, Ga.
Savannah, Ga.
Jacksonville, Fla.

New York, N. Y.
Detroit, Mich.
Marrero, La.
Kalamazoo, Mich.

Milwaukee, Wis.
Chicago, Ill.
Portland, Ore.
San Francisco, Calif.

Freeman, Ont.
(Hercules Powder Co. (Canada) Ltd.)

PM-79

5. Round-Table Discussion on Recovery Features.

Subjects discussed were: Recovery equipment and bleaching.

TISSUE PAPER

Chairman—Walter Johnson, Hoberg Paper Mills, Green Bay, Wis.

1. "Facts Concerning the Life and Care of Fourdrinier Wires" — W. E. Buchanan, Appleton Wire Works, Appleton, Wis.

2. "Tissue Machines"—G. E. Goodwillie, Beloit Iron Works, Beloit, Wis.

3. "Raw Materials"—Arthur Schmalz, Thilmany Pulp & Paper Co., Kaukauna, Wis.

Each of the above will be followed by a round-table discussion.

4. Films on "Dust Collection Equipment." "Flows of Dust and Air Streams in Various Ducts"—by J. A. McBridge, Buell Engineering Company, Inc., New York, N. Y.

Subjects discussed were: Paper Machine Adaptable to Facial Tissues and Fibrous Raw Macterials.

FINISHING, STORING AND SHIPPING

Chairman—Raymond L. Barton, Michigan Paper Company, Plainwell, Mich.

1. "Survey as an Aid to Moving Pulp and Paper Faster with Limited Manpower and Equipment"—Edward Southworth, Towmotor Corporation, Cleveland, Ohio.

2. "Some Aspects of Post-War Handling of Materials in Pulp and Paper Mills"—R. L. Smith, Automatic Transportation Company, New York, N. Y.

3. "Paper Shipping and Storing Practices"—John G. Bucuss, Acme Steel Company, Chicago, Illinois.

Each of the above will be followed by a round-table discussion.

Subjects discussed were: Shipping equipment and Power and lift trucks.

POWER AND PLANT ENGINEERS

Chairman—Raymond F. Bennett, Ecusta Paper Corporation, Pisgah Forest, N. C.

1. "Salvage"—Ralph S. Clark, Kalamazoo Vegetable Parchment Company, Parchment, Michigan.

2. "The Importance of a Recovery Unit as Steam Generating Equipment in the Pulp Mill" — F. H. Rosencrants, Combustion Engineering Company, Inc., New York, N. Y.

3. "Power Plant Operation and Maintenance"—G. H. Suhs, Sorg Paper Company, Middletown, Ohio.

4. "Water Lubricated Bearings"—Frank W. Vogt, Joseph T. Ryerson & Son, Inc., Jersey City, N. J.

5. "Corrosion of Steam Heating Surface"—S. W. Fletcher, J. O. Ross Engineering Corporation, New York, N. Y.

Subjects discussed were: Steam and electrical equipment and Bearings and packings.

Storage, Packaging and Shipping

J. G. Bucuss of the Acme Steel Company, Chicago, who spoke on "Paper Shipping and Storing Practices" in the group meeting on Finishing, Storing and Shipping, presents the following statements:—

In these days of war-time economy, each of us is seeking the most efficient way of profitably carrying on his business. To meet these many problems, thoughtful consideration must be given to the training of existing manpower—the reduced amount of available raw materials, and not the least—is the problem of safe delivery of finished products.

It was with this thought that your committee approached the problem of storage, packaging and shipping of the various products of the paper industry. As a result of our effort, it has been possible to assemble and correlate various papers written by members of the industry who have had a large experience in these respective phases.

The complete data that will ultimately be published will cover practices that have been tried and proved successful over many years. The fundamentals given in the book will perhaps remain for several years to come. However, it may be necessary to make some refinements in application, particularly in respect to new products the Industry may develop.

Your committee feels that this book should be designated as a manual and used as a guide for discussion with your plant organizations in promoting their programs for "Job and Methods Training." The committee also wishes to thank all those members who have cooperated in contributing their practices to this manual.

Thursday's Luncheon

At Thursday's luncheon in the grand ballroom, Otto D. Tolischus, foreign correspondent and author of "They Wanted War" and "Tokio Record," was the principal speaker. He discussed the actual background which was responsible for the present war and expressed the conviction that the Japanese are still savages with only a tin veneer of civilization. Mr. Tolischus believes the Axis power are on the downgrade and that the morale of the enemy is beginning to crack.

General Conference, Thursday

At a general conference held on Thursday afternoon, addresses were made on "Critical Materials" by James L. Ritchie, Chief Materials Department, and on "New Developments and Trends in the Paper Industry," by Robert Zaumeyer, Chief Developments Department, Pulp and Paper Section, War Production Board, Washington, D. C.

Affiliates' Dinner

The Industrial Affiliates of the American Pulp and Paper Mill Superintendents Association held its annual dinner at the Commodore Hotel on Monday evening. V. S. Denison, of the Beloit Iron Works, and chairman of the Industrial Affiliates Committee presided. The following were elected:

T. E. Dial, Socony-Vacuum Oil Co., Chairman.

John N. Noble, Improved Paper Machinery Corporation.

S. W. Fletcher, J. O. Ross Engineering Company.

Geo. W. Spencer, Pusey & Jones Corporation.

Harry G. Specht, Eastwood Neally Corporation.

Ex-officio members:

V. S. Denison, Beloit Iron Works.

T. E. Lagerstrom, International Nickel Company.

John Cornell, *Paper Mill News*, Secretary-Treasurer.

Trustees Meeting

The annual meeting of the trustees was held on Monday with President Grover Keeth presiding. The board decided to make tentative plans to hold the next annual convention in 1944 in either Chicago or Milwaukee. Secretary Robert L. Eminger reported

that there were 875 members of the American Pulp and Paper Mill Superintendents Association on June 1, 1943, which established a new high record.

Grover Keeth in his President's report stated that the Labor Committee had worked diligently on the manpower problem and human relations in pulp and paper mills and that Field Secretary George W. Craigie is preparing an extensive report on this subject for members. President Keeth said that he was glad to report another increase in the number of affiliate companies, which now totaled 86. Mr. Keeth likewise mentioned his visits to the several divisional meetings and the presentation of life memberships to W. A. Kelly, now with the Waterbury Felt Company, and to Mark Whitman, of the Marathon Paper Mills Company.

George W. Craigie in his report as Field Secretary, emphasized the fine spirit of cooperation of the Industrial Affiliates Committee in planning the panel discussions for the various group meetings. Mr. Craigie said the questions and answers at these meetings would be published in booklet form for the membership. He also reported on the work of the Labor Committee and his cooperation with this committee in preparing the information for the booklets.

Secretary-Treasurer, Robert L. Eminger, stated that in 1944, on the 25th anniversary of the association, he planned to have a special Year Book to commemorate this event and requested the cooperation of the board of trustees for ideas for this purpose.

Ralph E. Smith To Go East

VANCOUVER, B. C., June 21, 1943 — The Powell River Company Limited announces the appointment of Ralph E. Smith as special representative in Eastern Canada.

Mr. Smith was born and educated at Toronto, Ont., graduated in 1926 as Forest Engineer. He spent some time with the Ontario government and Dominion government forest services, later moving to the Pacific Coast where he was active in timber cruising, logging and sawmill work, also spending considerable time on export sales and shipping of lumber for export houses.

In 1936 he was appointed Timber Commissioner to Australia, New Zealand and the Pacific islands. From 1941 to early 1943 he was Special Advisor on timber to the government of the Commonwealth of Australia. In March he returned to Canada and took up his new duties in May. Mr. Smith is well known in business circles both in Eastern and Western Canada.

David Bowen Davies Dead

David Bowen Davies died in Providence Hospital, Seattle, Wash., June 12. Funeral services were held at Shelton, Wash. on June 14.

At the time of his death Mr. Davies was production manager for Rayonier Incorporated's three northwest mills and resided in Shelton. He was born in Glamorganshire, Wales, October 9, 1879, and came to this country in 1887. Mr. Davies was known prominently in the pulp and paper industry throughout the United States.

Before his association with Rayonier Incorporated he was superintendent of the Friend Paper Company, Miami Valley, Ohio, and Munising Paper Company of Munising, Mich. He was also associated with the Northern Paper Company as manager of their pulp division and then later became manager of the Hoberg Paper and Fiber Company, Green Bay, Wis. He came to the West Coast as manager of the Rainier Pulp and Paper Company in 1927 where he was a pioneer in the development of dissolving pulps for the rayon and cellophane industries.

Mr. Davies is survived by his wife, Maud J. Davies, a daughter, Mrs. Merritt Kaphingst, and grandson, David Merritt Kaphingst, all of Shelton, Wash., also a sister, Mrs. James Johnson of Olyphant, Pa.

Halifax Paper Co. Changes

ROANOKE, N. C., June 21, 1943—Ed. H. Graves, who has served as resident manager of Halifax Paper Company here since 1939, has been promoted to assistant to the president of the parent company, the Albemarle Paper Manufacturing Company of Richmond, Va.

O. J. McSwain, vice-president of the company, has assumed active management of the local plant replacing Mr. Graves, and plans to move his family to the city from Richmond in the near future.

Thornton O. Wilson, who was transferred to the Richmond office of the company about the first of the year, returns to his post as personnel manager here, and will move his family back to the city.

Prohibits Tapioca Size For Paper

In Conservation Order M-333, issued June 19 by the War Production Board, the use of tapioca in the paper industry as a beater, surface or tub size, is prohibited. This order becomes effective on July 1, 1943.

CHARTER MEMBER DAY, SALESMEN'S ASSOCIATION OF THE PAPER INDUSTRY, HONORING GEORGE K. GIBSON, HOTEL SHERMAN, JUNE 7, 1943

Those Who Attended the Convention

A

Mr. and Mrs. P. J. Abel, Stickle Steam Specialties Co.
Mr. and Mrs. A. G. Adams, Chicago, Ill.
G. J. Adams, International Paper Co.
J. E. Allen, Johnson & Johnson
Woodward Allen, Solvay Sales Corp.
Mr. and Mrs. N. M. Anderson, Marathon Paper Mills.
Sam I. Anderson, Hooker Electrochemical Co.
James J. Andrews, Fox Paper Co.
Mr. and Mrs. O. P. Arnold, Buffalo Rubber & Supply Co.
R. P. Abercrombie, Cheney-Bigelow Wire Works.
Charles S. Adams, Rice Barton Corp.
William Allen, A. E. Staley Mfg. Co.
S. L. Allen, J. E. Rhoads & Sons Co.
A. S. Anderson, Champion Paper & Fibre Co.
Ralph Atkins, Lee Paper Co.

B

Mr. and Mrs. C. L. Bachelder, Hercules Powder Co.
Mr. and Mrs. A. E. Bachmann, Mississquoi Corp.
J. Kenneth Baggs, Hercules Powder Co.
William M. Bain, Glidden Co.
Philip Baker, Schmidt & Ault Paper Co.
R. R. Baker, Westinghouse Electric & Mfg. Co.
Henry P. Baldwin, Consolidated Water Power & Paper Co.
Mr. and Mrs. A. J. Barea, Paterson Parchment Paper Co.
Paul Baronow, Valley Iron Works.
Mr. and Mrs. Barry, Hummel-Downing Paper Co.
T. M. Barry, Fraser Paper Ltd.
Mr. and Mrs. R. L. Barton, Michigan Paper Co.
T. G. Batchelor, Hercules Powder Co., Inc.
R. W. Bauman, Johns-Manville Corp.
Mr. and Mrs. B. Beasley, Brown Paper Mill Co.
Mr. and Mrs. G. Bechard, Tucker, Ga.
F. K. Becker, Bird Machine Co.
Mr. and Mrs. R. F. Bennett, and daughter Jean, Ecusta Paper Co.
F. E. Bentley.
E. H. Berges, Farrel-Birmingham Co., Inc.
Mr. and Mrs. L. H. Bidwell, Riegel Paper Corp.
Mr. and Mrs. S. G. Blankinship, Port Royal Pulp & Paper Co., Ltd.
Harrison C. Bloomer, Bloomer Bros. Co.
Mr. and Mrs. J. E. Blosser, Veldown Co.
Max Blyneis, Mich. Wood Products Co.
J. M. Booth, Huron Milling Co., Inc.
Mr. and Mrs. W. P. Bowld, Buckeye Cotton Oil Co.
G. D. Bowne, Westinghouse Electric & Mfg. Co.
Mr. and Mrs. F. C. Boyce, Wisconsin Paper Products Co.
Samuel M. Bratton, Pusey & Jones Corp.
Herbert A. Brawn, Miamisburg Paper Co.
Hon. Ralph B. Brewster, U. S. Senator from Maine.
Mr. and Mrs. L. H. Breyfogle, Draper Bros. Co.
Mr. and Mrs. B. M. Briggs, Lawrence Paper Co.
Mr. and Mrs. R. E. Briggs, Draper Bros.
Mr. and Mrs. W. H. Brydges, Bedford Pulp & Paper Co.
H. C. Burnett, New Haven Pulp & Board Co.
J. G. Bucuss, Acme Steel Co.
D. M. Burgess, R. G. Letourneau, Inc.
Mr. and Mrs. H. H. Burrows, Manhattan Rubber Co.
John Buss, Provincial Paper Ltd.
William Butler, Sanitary Paper Mills
DeHaven Butterworth, H. W. Butterworth & Sons.
E. Butts, Jr., Stein Hall & Co.
P. W. Bartholomew, Hercules Powder Co.
Raymond L. Barton, Michigan Paper Co.
L. C. H. Beighey, Hammermill Paper Co.
Harry Bennett, Valley Iron Works.
Mr. and Mrs. M. H. Bennett, Stebbins Engineering & Mfg. Co.
Bernard Benson, Williams Gray Co.
F. N. Beveridge, Miami, Fla.
Howard W. Bogle, Central Fibre Products Co.
Mr. and Mrs. W. G. Booth, Robert Gair Co., Inc.
Paul Boronow, Valley Iron Works Co.
M. F. Bosworth, PAPER TRADE JOURNAL.
F. C. Boyce, D. J. Murray Co.
A. F. Boyd, F. C. Huyck & Son.
S. A. Brunell, Hercules Powder Co.
H. E. Brinckenhoff, American Pulpwood Association.
W. E. Buchanan, Appleton Wire Works.
Richard Buckley, Fernstrom Paper Mills, Inc.
J. G. Bullard, Corn Products Refining Co.
Mr. and Mrs. J. J. Burks, Bird & Son, Inc.
E. R. Burling, Improved Paper Machinery Corp.
H. C. Burnett, New Haven Pulp & Board Co.
Mr. and Mrs. F. H. Burrows, Burrows Paper Co.
Roy E. Bare, Elk Paper Mfg. Co.
Mr. and Mrs. E. Barney, Cornell Wood Products.
John Browne, Chemical Paper Company.

C

Wm. N. Cairnie, E. B. Eddy Co., Ltd.
Frank G. Calkins, West Norfolk, Va.
Mr. and Mrs. O. W. Callighan, Edgar Brothers Co.
R. M. Cameron, Foster Paper Co.
Mr. and Mrs. W. W. Campbell, Jr., Lockport Felt Co.
Campins, Frank C., National Starch Products, Inc.
F. Casciani,, Niagara Alkali Co.
Charles Champion, Millers Falls Paper Co.
Ralph Clark, K.V.P.
Fred A. Collinge, Wabash, Ind.
Mr. and Mrs. A. C. Clarke, John W. Bolton & Sons, Inc.
Arthur A. Coffin, Titanium Pigment Corp.
Mr. and Mrs. O. C. Cordes, Downingtown Manufacturing Co.
John Cornell, *Paper Mill News.*
J. W. Coutre, Dilts Machine Works.
Crabtree, Harry, E. B. Eddy Co., Ltd.
Mr. and Mrs. G. W. Craigie, Field Secretary.
J. F. Cronin, Cheney-Bigelow Wire Works.
Mr. and Mrs. F. S. Chrysler, Container Corporation of America.
Isabelle A. Campbell, Lockport, N. Y.
George N. Carlton, Detroit Sulphite Pulp & Paper Co.
Charles Carpenter, Southland Paper Mills, Inc.
C. E. Carpenter, Ohio Boxboard Co.
T. N. Carter, Cameron Machine Co.
C. H. Champion, R. T. Vanderbilt Co.
C. L. Clark, Nash Engineering Co.
Edwin W. Clark, E. C. Atkins & Co.
S. Clayman, Clinton, Co.
Walter Clifford, Penick & Ford Ltd., Inc.
W. R. Cloud, United States Paper Mills, Inc.
F. H. Cole, Walworth Co., Inc.
A. M. Cooper, Westinghouse Electric & Mfg. Co.
W. W. Cronkhite, General Electric Co.
Lester W. Crouse, Penick & Ford Ltd.
C. M. Connor, Glassine Paper Co.

D

John C. Dabney, Harris-Seybold-Potter Co.
Mr. and Mrs. P. E. Daley, Eastwood Nealley Corp.
B. W. Dean, E. D. Jones & Sons.
Mr. and Mrs. H. Deffew, Richmond, Va.
C. D. DeMers, Taylor Instrument Companies.
Mr. and Mrs. V. S. Denison, Beloit Iron Works.
James Derrico, Derrico Co., Inc.
Mr. and Mrs. D. DeZurik, DeZurik Shower Co.
Mr. and Mrs. T. E. Dial, Socony Vacuum Oil Co., Inc.
Mr. and Mrs. F. A. Dieckbrader, Hinde & Dauch Paper Co.
J. C. Dieffenderfer, Hercules Powder Co., Inc.
K. M. Dillabaugh, Solvay Process Co.
Mr. and Mrs. G. A. Disbro, W. S. Tyler Co.
Foster J. Doane, Jr., Sandy Hill Iron & Brass
J. C. Dorty, Simonds Worden White Co.
Mr. and Mrs. J. H. Dow, Castle & Overton.
Lewis Dozier, Rhinelander Paper Co.
G. Dunning, Wyandotte Chem. Corp.
C. L. Durkee, D. J. Murray Mfg. Co.
C. J. Dynes, Sorg Paper Co.
Roland A. Day, A. P. W. Paper Co.
J. A. DeCew, Process Engineers.
H. J. Desotell, Northern Paper Mills.
J. D. Dickson, R. T. Vanderbilt Co.
Edward Docherty, Holyoke Wire Cloth Co.
Paul G. Donaghy, Corn Products Sales Co.
Robert Douglas, Ohio Knife Co.
Sydney Dowst, R. T. Vanderbilt Co.
Mr. and Mrs. F. W. Drake, Lockport Felt Co. New Bedford, Mass.
C. O. Duston, Stowe Woodward, Inc.
Harold E. Duston, Monsanto Chemical Co.
John Devou, Gair Bogota Corrugated Fibre Box Corp.
A. B. C. Drew, New Bedford, Mass.

E

Roger G. Edwards, American Metallic Fabric Co.
H. O. Ehrisman, Foxboro Co.
Mr. and Mrs. C. L. Ellis, Downingtown Mfg. Co.
Mr. and Mrs. R. L. Eminger, American Pulp and Paper Mill Superintendents Association.
Newton Ewalt, Walworth Co., Inc.
Paul Easton, Hercules Powder Co.
Homer Eaton, Wyandotte Chemicals Corp.
E. Ebie, Champion Paper & Fibre Co.
Mr. and Mrs. K. I. Ekholm, National Aniline & Chemical Co.
Axel Ekwall, Billerud Co., Ltd.
L. W. Elliott, Lobdell Co.
Edwin H. Ellis, Sorg Paper Co.
A. C. Embshoff, Infilco, Inc.

F

Sven Fahlgren, Bird Machine Co.
Mr. and Mrs. L. E. Fitzgerald, Hercules Powder Co.
Mr. and Mrs. E. T. Fleming, Jr., Fleming & Sons, Inc.
Mr. and Mrs. J. A. Foxgrover, Hercules Powder Co.
A. G. Frankenhoff, Dicalité Co.
Mr. and Mrs. E. T. Frankenhoff, Dicalite Co.
H. B. Freeman, American Cyanamid & Chemical Co.
Mr. and Mrs. O. G. Fricke, Jr., Sinclair & Valentine Co.
Val Friedrich, Jr., The Beckett Paper Co.
Albert E. Fuller, Merrimac Paper Co.
S. W. Fletcher, J. O. Ross Engineering Corp.
J. W. Flynt, The Babcock & Wilcox Co.
Thomas J. Flaherty, American Writing Paper Co.

G

W. W. Galloway, Bauer Bros. Co.
Robert Gavin, B. F. Nelson Mfg. Co.
Mr. and Mrs. I. Gehring, Fulton, N. Y.
F. S. Gibbs, Wallace & Tiernan Co.
Ralph A. Gilchrest, Simonds Saw & Steel Co.
Mr. and Mrs. E. P. Gillan, Anheuser Busch, Inc.
H. G. Gilman, No. Winchester, Conn.
E. N. Glauner, Downingtown Mfg. Co.
M. B. Gormley, Marinette Paper Co.
Mr .and Mrs. J. F. Good, Hinde & Dauch Co.
E. H. Grasse, Farrel Birmingham Co.
Mr. and Mrs. W. E. Greene, W. E. Greene Corp.—Stowe Woodward, Inc.
Mr. and Mrs. W. P. Guenther, Mead Corp.
A. C. Gault, W. S. Tyler Co.
J. E. Getty, West Virginia Pulp & Paper Co.
J. E. Goodwillie, Beloit Iron Works.
Joseph E. Greg, San Nap Pak Co.
R. M. Guie, Philadelphia Felt Co.
A. H. Gilmour, C. H. Norton Co.
Philip H. Goldsmith, Pusey & Jones Corp.

H

Donald M. Hall, Eastwood-Nealley Corp.
H. W. Hall, The Dicalite Co.
James E. Hall, Champion Paper & Fibre Co.
John H. Hall, Warren Steam Pump Co.
R. W. Hamilton, Nashua River Paper Co.
Mr. and Mrs. A. A. Harden, Corn Products Sales Co.
S. S. Harkavy, Geigy Co., Inc.
Mr. and Mrs. J. D. Haskell, Dilts Machine Works, Inc.
J. W. Hawthorne, H. & T. McCluskey & Sons.
J. J. Healy, Jr., Monsanto Chemical Co.
Mr. and Mrs. J. W. Hamphill, Johns-Manville Corp.
G. A. Hermann, Hermann Mfg. Co.
E. C. Hilton, Geigy Co., Inc.
George N. Hoover, Jr., West Virginia Pulp & Paper Co.
H. A. Horstmann, General Dyestuff Corp.
Mr. and Mrs. H. Hulm, U. S. Rubber Co.
Mr. and Mrs. R. W. Hynes, Newton Falls Paper Mill.
Edward H. Hall, Fitchburg Screen Plate Co., Inc.
A. L. Hamm, Combustion Engineering Co.
Mr. and Mrs. G. W. Hardaker, Sinclair Co.
H. H. Harrison, Crystal Tissue Co.
W. I. Harte, John W. Bolston Sons, Inc.
R. E. Harter, R. T. Vanderbilt Co.
David F. Hayes, Lawless Bros. Paper Mills, Inc.
O. E. S. Hedbring, Continental Paper Co.
Albert A. Hentschel, Flintkote Company.
Arthur L. Hobday, Southworth Paper Co.
W. F. Hoffman, Fitchburg Paper Co.
Arthur H. Holbrook, English China Clay Sales Corp.
Jos. L. Hollihan, Port Huron Sulphite & Paper Co.
Charles I. Horton, R. T. Vanderbilt Co.
Lois V. Hans, Hercules Powder Co.
Roy Holden, Stowe-Woodward, Inc.

I

Harry A. Irving, Taylor Instrument Companies.

J

E. A. Jackman, Oxford Paper Co.
Milton Jacobs, Chas. T. Main Co.
J. P. Jackson, Simonds Saw & Steel Co.
Corwin Jewell, Lindsay Wire Co.
Frank A. Johnson, Crocker-McElwain Co.
R. S. Johnston, Pusey & Jones Corp.

IN PEACE

IMPCO Equipment Installations
The Improved Paper Machinery Corporation of Nashua, N. H., furnished the beach towers, agitator and discharge mechanisms, as well as the vacuum filter washers and mixers.
The bleached stock is stored in slush form in Kalamazoo Tile Tanks, from where it is pumped to the beater room. In the beater room the slush stock of two grades comes first to a Trimbey metering box, where the proportions of the two stocks can be set, as well as the total quantity varied to suit specific needs.
The metered stock then goes over a thickener where its consistency is brought up to six per cent., as desired for beating. The thickener also acts to reclaim the fiber from the excess
the paper machine. This thickene
Improved Paper Machiner
From the blow tank the pulp is washed in a 3-sta
counter current vacuum washer system consisting
three 8 feet x 12 feet washers, each having 300
feet drainage area, furnished by Improved Paper
Machinery Corporation. Tanks between the
screen provide for the storage of strong, the
and weak black liquor and pulp, and there is a
tank to permit the removal of pulp from any
in the event of a shut-down.
The Screen Room
The pulp next flows to the Screen Room
larger screen area than usual has been
pco to produce pulp of unusual
up first passes through three
developed at the
it flows through a
constructed of
of centrifu
IMPCO Installations
e major portions of the mechanical equipment
the pulp mill end of the new addition at Houston
e furnished by the Improved Paper Machinery
rporation, Nashua, N.H.
A new "IMPCO" Vacuum Washer for washing
ack liquor from the pulp as it comes from the di-
esters is now being installed. This machine is
equipped with a nickel iron valve and rotating seat
for resistance to corrosion, and the "IMPCO"
Driven Forming Roll which gives a preliminary ex-
traction of liquor before washing from the washing
showers starts.
Pulp for the new system goes through its own
blow tank, is washed, and stored in the washed stock
chest. From this, it is pumped to the "IMPCO"
bronze vat flat screens which are of the silent type
using the Dunbar (patented) drive.
Following these, the stock is thickened and goes to
the multi-stage continuous bleachery. Each stage in
the bleaching is followed by a vacuum washer fur-
nished by "IMPCO", as was the bleachery mechani
cal equipment for mixing of pulp and chemicals ex
cepting the high density towers, for discharge fro
the towers, and for agitation in the dump chests f
lowing the towers.
The bleached stock is then riffled and rewas
over an "IMPCO" 8x12 double valve vacuum
washine from which it goes to the bleached s
storage chest, for this grade.
From the chest, it can be sent either to the
drying machine, or pumped as slush to the
"IMPCO" thickener and Saveall located
which delivers the stock to
INVARIABLY
it's
IMPCO
for
BETTER EQUIPMENT
IMPROVED
PAPER MACHINERY
CORPORATION
NASHUA • NEW HAMPSHIRE

remembered

H. D. Jones, Manhattan Rubber Mfg. Co.
T. Laurence Johnson, R. T. Vanderbilt Co.
Walter A. Johnson, Hoberg Paper Mills.
J. Wesley Joslyn, Sandy Hill Iron & Brass Works.

K

H. E. Karberg, Alliance Paper Mills, Ltd.
Mr. and Mrs. G. Keeth, Marathon Paper Mills Co.
Ralph Kehl, Kimberly Clark Corp.
Richard Kehoe, Paper & Industrial Appliances.
M. I. Keirn, Wallace & Tiernan Co.
Mr. and Mrs. R. H. Kelly, Marathon Paper Mills.
N. M. Kennedy, Penick & Ford, Ltd.
Mr. and Mrs. F. Kruse, West Point, Va.
Ralph Kumler, American Cyanamid & Chemical Co.
C. H. Kent, Hercules Powder Co.
Conrad J. Kern, Moore & White Co.
Dr. K. J. E. Killinger, Penick & Ford Ltd., Inc.
V. E. Kirby, Hummel Ross Co.
E. W. Kanning, Dow Chemical Co.
H. C. Klein, B. F. Goodrich Co.

L

Mr. and Mrs. T. E. Lagerstrom, International Nickel Co.
E. E. Lamb, Simonds Saw & Steel Co.
L. H. LaLiberte, Kalamazoo Vegetable Parchment Co.
Eric T. Laurin, Calgon, Inc.
Jay J. Lawson, International Paper Co.
Mr. and Mrs. J. R. Leslie, Alliance Paper Mills, Ltd.
Prof. & Mrs. Libby, and 2 children, New York State College of Forestry.
Hr. and Mrs. A. J. Loman, Robert Gair Co.
George E. Lockwood, PAPER TRADE JOURNAL.
Mr. and Mrs. A. J. Loman, Robert Gair Co.
Allen A. Lowe, Sandy Hill Iron & Brass Works.
Ernest Loyst, National Paper Products Co.
Mr. and Mrs. C. Ludwig, The Mead Corp.
A. C. Lutz, B. F. Goodrich Co.
O. F. Lane, E. I. du Pont de Nemours Co.
Homer H. Latimer, Champion Paper & Fibre Co.
William C. Law, S. A. Bicking Paper Mfg. Co.
H. S. Leonard, Monsanto Chemical Co.
John H. Loomis, Heller & Merz.
George K. Losher, Auglaize Box Board Co.

M

R. G. Macdonald, Technical Association of the Pulp and Paper Industry.
John MacGregor, MacGregor Inst. Co.
E. MacWhiter, Provincial Paper, Ltd.
J. C. Marrone, A. M. Meincke & Son.
William A. Marrs, National Vulcanized Fibre Co.
F. D. Martin, Lindsay Wire Weaving Co.
R. B. Martin, Wallace & Tiernan Co.
H. D. Martindale, Middletown, Ohio.
J. Mathews, Wm. Cabble Co.
Mr. and Mrs. A. M. Mausolf, Fletcher Paper Co.
M. Craig Maxwell, Moore & Thompson Paper Co.
Howard G. Mayshaw, Bird Machine Co.
Maurice F. McCarthy, Hollingsworth & Whitney Co.
M. F. McCombs, Niagara Alkali Co.
Miss Louise E. McGrath, Booth Chemical Co.
Herbert McKay, Alliance Paper Mills, Ltd.
Smith McLandress, Appleton Wire Works, Inc.
R. W. Miller, Pittsburgh Plate Glass Co.
Darwin Miscall, Orr Felt & Blanket Co.
Brydon D. Millidge, Alliance Paper Mills, Ltd.
Harvey Moore, Kieckhefer Container Corp.
C. Morganstern, Clinton Co.
D. C. Murchison, Howell & Murchison
A. McLintock, Texas Gulf Sulphur Co.
C. E. Macklem, Beloit Iron Works.
A. B. Manogue, Ohio Boxboard Co.
R. D. McCarron, Stein & Hall & Co., Inc.
Lee McFail, Oxford Paper Co.
Richard F. McNett, Bauer Bros. Co.
Edward McWhirter, Provincial Paper Ltd.
Henry L. Mellen, Hercules Powder Co.
Mr. and Mrs. O. W. Messner, Robertson Paper Box Co.
W. K. Melcalfe, J. O. Ross Engineering Co.
Louis J. Meunier, Jr., North Carolina Pulp Co.
R. W. Mizell, Crossett Paper Mills.
H. P. Modsen, Appleton Machine Co.
A. D. Merrill, Chemipulp Process, Inc.
Mr. and Mrs. J. A. Mol, Cellutine Corp. of America.
Edward A. Moncalieri, Latex Fiber Industries.
Don Montville, Shartle Bros.
R. I. Moran, National Aluminate Corp.
John M. Morris, Hummel & Ross Fibre Corp.
Mr. and Mrs. M. O. Morris, Case Bros., Inc.
David Murchison, Georgia Kaolin Co.
R. S. Murgatroyd, John W. Bolton & Sons.
C. B. Muzzy, E. D. Jones & Sons Co.
J. W. Marcy, B. F. Goodrich Co.

N

John H. Noble, Improved Paper Machinery Corp.
A. A. Nyitary, Eastwood-Nealley Corp.
Ernest A. Newman, Crossett Paper Mills.
L. D. Nicolson, District of Columbia Paper Mills
A. T. Nielsen, Worthington Pump & Machinery Corp.

O

J. J. O'Brien, *Paper Mill News.*
C. J. O'Neil, Johns-Manville Company
G. E. Osterheldt, Krebs Pigment & Color Corp.
H. A. Otto, American Tissue Mills.
S. R. Olsen, Champion Paper & Fibre Co.
H. Otto, American Tissue Mills.

P

Robert W. Pattison, American Writing Paper Corp.
G. Park, Fitchburg Paper Company.
Mr. and Mrs. J. B. Pendleton, Manhattan Rubber Mfg. Division.
Mr. and Mrs. L. B. Penhallow, Socony Vacuum Oil Co.
Mr. and Mrs. G. M. Pennock, Bagley & Sewall Co.
Mr. and Mrs. A. B. Perlick, Kalamazoo Vegetable Parchment Co.
M. W. Phelps, Solvay Process Co.
E. A. Poirier, Poirier Control Co.
M. K. Polk, Plymouth, N. C.
R. E. Prinie, Allis Chalmers Co.
Donald M. Parrish, Chromium Corp. of America.
F. W. Partsch, J. O. Ross Engineering Corp.
E. R. Patton, International Nickel Co.
Norman Pearse, Champion International Co.
A. L. Perry, E. I. du Pont de Nemours Co.
A. W. Phier, D. J. Murray Mfg. Co.
David Piller, Holyoke Wire Cloth Co.
Mr. and Mrs. W. Putney, Philadelphia Felt Co.

Q

A. S. Quinn, Stebbins Engineering Corp.

R

J. W. Raines, The Lindsay Wire Weaving Co.
G. E. Rausch, Interlake Tissue Mills Co., Ltd.
John G. Reanick, Warren Steam Pump Co.
A. W. Redlin, Beach & Arthur Paper Co.
A. E. Regnier, Hercules Powder Co.
J. S. Reichert, E. I. du Pont de Nemours & Co., Inc.
J. Edgar Rhoads, J. E. Rhoads & Sons.
J. P. Rich, Nashua, N. H.
J. R. Roberts, E. I. du Pont de Nemours & Co., Inc.

TILE CHESTS *Built to your Requirements*

KALAMAZOO tile chests can be built to your exact requirements for stock storage and bleaching. The vitrified glazed tile, made in our own tile plant, is impervious to all ordinary stock fluids and is suitable for storage of liquid alum. The smooth surface is cleaned easily and quickly with hose. Your installation can be designed for adaptation to pump delivery and agitation of any type. Our manufacturing facilities and years of experience with the paper industry are geared for immediate attention to your individual requirements. Write for complete information about prompt delivery and carefully supervised installation.

So satisfactory was the first 37-foot Kalamazoo Glazed Tile Chest installed for the Sorg Paper Company, Middleton, Ohio, that they have recently added two more. All are adapted for Shartle Bros. "Agi-Flow."

BUY WAR BONDS

GLAZED TILE

KALAMAZOO TANK & SILO CO.

KALAMAZOO, MICHIGAN

WOOD

PUT *Beckman* pH CONTROL TO WORK IN *YOUR* PLANT

1. IMPROVING PRODUCTION QUALITY
2. REDUCING CORROSION
3. SAVING CHEMICALS
4. INCREASING PLANT EFFICIENCY

By Beckman-controlling the pH of your pulp processing operations you can make—not *one*—but FOUR vital savings in your production costs . . . *important* savings that mean a higher quality of paper at lower operating costs . . .

1. It is a well-known fact that the printing and aging properties of paper are largely dependent upon the pH of the finished paper. By Beckman-controlling your pulp processes to insure a neutral pH in the pulp, you can greatly improve the uniformity, the printing and aging qualities of your finished product.

2. By maintaining a controlled pH in the pulp, as it flows onto the wires, costly wire corrosion is reduced to a minimum, substantially cutting maintenance and upkeep costs.

3. Beckman-controlling the pulp processes eliminates "over-dosing" and expensive waste of alum and other chemicals. This saving is particularly important with today's vital need for conserving chemicals for war industries.

4. Pulp having a controlled pH prevents "gumming" in the machine, stepping up plant efficiencies and production output with less down-time and maintenance.

LET US HELP YOU take full advantage of the multiple savings possible through Beckman pH Control. Our engineering staff will gladly make recommendations to fit your particular requirements.

NATIONAL TECHNICAL LABORATORIES
SOUTH PASADENA • CALIFORNIA

WORLD'S LARGEST MANUFACTURER OF GLASS ELECTRODE pH EQUIPMENT

The Beckman Automatic pH Indicator is the most advanced pH instrument available today. Incorporates many unique features found in no other make or type of equipment. Operates standard control and recording equipment. Ask for Bulletin 16!

The Beckman Industrial pH Meter is ideal for portable plant and field use. Simple, quick, accurate. May be used with Beckman Flow Type and Immersion Type Electrode Assemblies for maintaining pH check on solutions in process. Ask for Bulletin 21!

SEND FOR YOUR COPY OF THESE HELPFUL BECKMAN BOOKLETS!

"What Every Executive Should Know About pH"—a simple, non-technical discussion of what pH is, how it's used, and its importance to modern industrial operations.

Bulletin 86—The most complete catalog available on modern pH equipment. Lists and describes over 60 different electrodes together with accessory equipment for all types of applications.

Beckman **THE LEADING NAME IN pH**

Wm. H. Robertson, Champion Paper & Fibre Co.
C. P. Robinson, Heppenstall Co.
Mr. and Mrs. K. B. Rogers, Champion Paper Co.
F. J. Rooney, Wisconsin Wire Works.
T. Alfred Rowlands, Waterbury Felt Co.
L. E. Russell, Mathieson Alkali Works.
Mr. and Mrs. B. M. Ryan, Asten Hill Mfg. Co.
R. M. Radsch, Appleton Machine Co.
S. O. Rash, Hummell Ross Fibre Co.
F. W. Roberts, F. W. Roberts Mfg. Co.
Walter S. Rooney, Albany Felt Co.
F. H. Rosencrantz, Combustion Engineering Co.
F. M. Rhoten, Hope Rubber Co., Inc.
Mr. and Mrs. H. M. Rice, E. I. duPont de Nemours & Co.

S

J. W. Sale, Hummel-Ross Co.
Mr. and Mrs. J. Scheuermann, Camera Machines Company.
Mr. and Mrs. J. Carl Schmid, E. I. du Pont de Nemours & Co., Inc.
John Schuber, Solvay Process Co.
A. M. Schultz, Chesapeake Camp Corp.
Mr. and Mrs. N. B. Scott, Orr Felt & Blanket Co.
D. R. Seip, Johns Manville Corp.
L. E. Sennet, Ludlow Valve Mfg. Co.
Mr. Shaughnessy, Sorg & Co.
G. K. Singleton, Brunswick Co.
Mr. and Mrs. C. F. Sisson, Mac Sim Bar Paper Co.
E. M. Sligh, National Pairpoint Co.
Mr. and Mrs. L. E. Smith, Downingtown Mfg. Co.
Mr. and Mrs. L. J. Smith, Combined Locks Paper Co.
Richmond W. Smith, Bird Machine Co.
Royal H. G. Smith, Sorg Paper Co.
Claude A. Sorg, Sorg Paper Co.
Geo. H. Spencer, Pusey & Jones Corp.
Mr. and Mrs. C. E. Staky, D. J. Murray Mfg. Co.
Mr. and Mrs. O. Stamets, Riegel Paper Corp.
E. L. Stansel, Provincial Paper Co.
Cornelius Stapley, Chemical Paper Co.
Stephen G. Stapley, Provincial Paper Ltd.
R. E. Stearns, United Paper Board Co.
J. N. Stephenson, *Pulp & Paper Magazine of Canada.*
Mr. and Mrs. R. R. Stoltz, Westinghouse Elec. & Mfg. Co.
Mr. and Mrs. W. E. Stone, Lodding Engineering Co.
J. P. Strasser, Stein Hall & Co.
Joseph Stuart, Lobdell Co.
G. H. Suhs, Sorg Paper Co.
Bruce Suttle, Herty Foundation Laboratory.
Mr. and Mrs. G. Sutton, Sutherland Paper Mills Co.
H. F. Schenk, Wm. A. Hardy & Sons Co.
Mr. and Mrs. C. Schermerhorn, Stowe-Woodward, Inc.
A. M. Schmalz, Thilmany Pulp & Paper Co.
D. E. Scott, Chase Bag Co.
C. H. Shelley, Fibre Containers Corp.
Fred H. Shew, Terre Haute Paper Co.
H. W. Shewman, Northern Paper Mills.
C. P. Slocum, Corn Products Sales Co.
R. J. Sprang, Champion Paper & Fibre Co.
W. W. Stapler, Hercules Powder Co.
Douglas M. Sutherland, Sutherland Refiner Corp.
Robert H. Smith, Bryant Paper Co.
Roscoe H. Smith, Reliance Electric Co.
Edward Southworth, Towmotor Corp.
H. Dougles Stier, The Falk Corp.

T

Mr. and Mrs. A. T. Taylor, Bedford Pulp and Paper Co.
Stillman Taylor, Associate Editor PAPER TRADE JOURNAL.
Richard U. Temple, Downingtown Mfg. Co.
Mr. and Mrs. K. E. Terry, S. D. Warren Co.
E. L. Tewksbury, Stowe-Woodward, Inc.
Mr. and Mrs. F. P. Thornton, Stowe-Woodward, Inc.
Albert Tietig, Ohio Knife Co.
Richard Tobin, Pond's Extract Co.
Mrs. T. Tourangeau.
Edward F. Tucker, Stebbins Engineering & Mfg. Co.
Mr. and Mrs. E. E. Tweed, Mead Corp.
P. A. Talbot, R. T. Vanderbilt Co.
C. K. Textor, Bauer Bros. Co.
B. M. Thomas, American Coating Mills, Inc.
George A. Thompson, Jr., B. F. Perkins & Sons, Inc.
William Thompson, E. I. du Pont de Nemours & Co.
E. W. Tinker, American Paper & Pulp Association.
R. Tutt, Jr., Peter Cooper Corp.

U

R. M. Upright, The Dow Chemical Co.

V

Lawrence Valman, Bloomer Bros. Co.
Mr. and Mrs. C. C. Van Stry, Cameron Machine Co.
G. P. Vincent, Northern Alkali Works.
R. W. Van Kirk, Penick & Ford, Ltd.
C. H. Vickery, E. D. Jones & Sons Co.
Morris Van Patten, Wm. E. Hooper & Sons Co.
C. Vicario, The Nash Engineering Co., Inc.

W

Mr. and Mrs. G. K. Walker, Finch Pruyn & Co., Inc.
Mr. and Mrs. J. A. Waters, American Wringer Co.
A. E. Waugh, United States Rubber Co.
Mr. and Mrs. H. F. R. Weber, Link-Belt Corp.
W. J. Weed, Niagara Alkali Co.
Mr. and Mrs. B. P. Weesner, Container Corp. of America.
Mr. and Mrs. H. E. Wehr, Mead Corp., Heald Div.
Mr. and Mrs. N. O. Weil, Tyler Wire Co.
Mr. and Mrs. A. J. Weller, Sutherland Paper Co.
Harry E. Weston, *The Paper Industry and Paper World.*
Mr. and Mrs. W. Weston, American Wringer Co.
H. R. Wheeler, The Victoria Paper Mills Co.
W. B. Wheelwright, Calloway Associates.
A. W. Wickham, McAndrews & Forbes Co.
Walter Wiggett, E. B. Eddy Co., Ltd.
Roland Wilber, Pisgah Forest, N. C.
A. B. Williams, American Wringer.
Mr. and Mrs. H. H. Williams, E. D. Jones & Sons Co.
Vernon Woodside, Mathieson Alkali Works, Inc.
Mr. and Mrs. G. C. Walton, Downingtown Mfg. Co.
A. F. Wardwell, Carthage Machine Co.
A. H. Webber, National Aluminate Corp.
E. N. Wennberg, Brown Co.
Walter E. Woods, A. P. W. Paper Co.
John M. Walsh, American Cyanamid & Chem. Corp.
J. E. Waterhouse, Montague Machine Co.
H. G. Wayshaw, Bird Machine Co.
B. L. Whittier, Mt. Vernon-Woodberry Mills.
Jack Fife Wright, Natl. Aniline & Chemical Co., Inc.

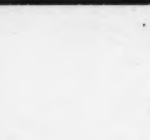
Y

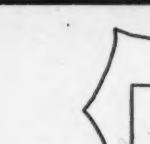
Mr. and Mrs. J. W. Youngchild, International Paper Co.
C. E. Youngchild, International Paper Co.
F. W. Young, Bird Machine Co.

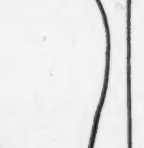
Z

John V. Ziemann, Marinette Paper Co.
F. L. Zellers, Chillicothe Paper Co.
W. R. Zwecker, Seaman Paper Corp.

We're in it for the duration







SINCE 1828

We have served the industry well, with the finest in Paper Mill Machinery.

NOW

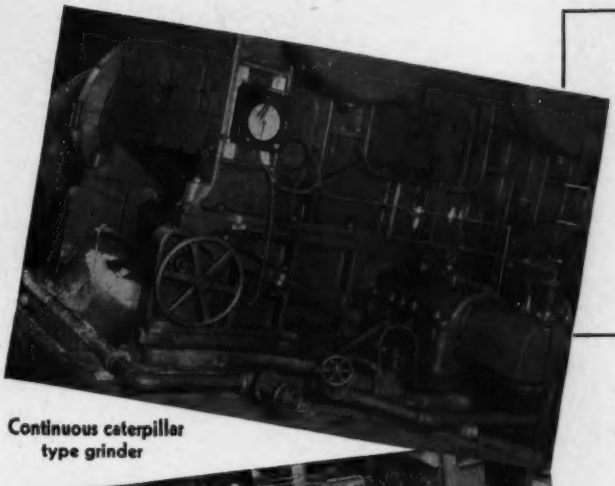
our entire manufacturing facilities are engaged in turning out material for the mightiest and most formidable fighting machine our country has ever known.

While we cannot give you typical peacetime SW Service, we can supply you with replacements — under proper priority rating, of course.

THE SMITH & WINCHESTER

MANUFACTURING COMPANY

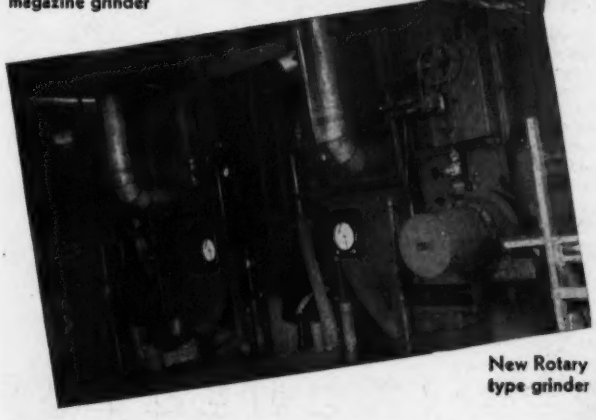
PLANT AND OFFICES AT SOUTH WINDHAM, CONNECTICUT



Continuous caterpillar type grinder

Semi-magazine grinder

Hydraulic type magazine grinder



New Rotary type grinder

Which type of grinder needs Taylor Automatic Temperature Control?

The answer is, *any* type!

Wood pulp grinders, although in use before the Civil War, were not greatly changed in design or operating practice until about 30 years ago. Since then, the steadily increasing demand for paper of all kinds has resulted in many improvements in grinder design and operating practice—one of the most important of which is the *temperature* at which groundwood pulp is produced.

Up to about 13 years ago, grinding temperatures rarely exceeded 145°F., and in many plants were 15° to 30° below that. It is significant that this increase in grinding temperatures started at about the time of *the first practical and successful application* of automatic grinder temperature control. This was developed by Taylor Instrument Companies.

Taylor Automatic Grinder Temperature Control keeps temperatures within 2° to 4° of the temperature best suited for each furnish. It will give you:

1. *A material increase in production*
2. *A definite decrease in power consumption per ton.*
3. *A more uniform stock.*
4. *A lower stone cost due to longer periods of operation between burring.*

Whatever type of grinder you're using—or thinking of buying—Taylor Automatic Grinder Temperature Control will assure maximum efficiency. Ask your Taylor Field Engineer! Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada. *Instruments for indicating, recording and controlling temperature, pressure, humidity, flow, and liquid level.*

Taylor Instruments

MEAN

ACCURACY FIRST

IN HOME AND INDUSTRY

★ KEEP ON BUYING U. S. WAR BONDS AND STAMPS ★

Recommends Further Newsprint Cut

WASHINGTON, June 21, 1943—Publishers of large newspapers will be directed to reduce their consumption of newsprint by about another 5% in the third quarter of this year and to reduce their inventories from a seventy-five to a fifty-day supply, with some regional exceptions, if recommendations made today by the Newspaper Industry Advisory Committee are accepted by the War Production Board.

Under the recommendations there would be no further cut on the first twenty-five tons for newspapers which do not use more than 500 tons of newsprint per quarter. Representatives of the larger newspapers agreed to forego this exemption.

For newspapers using up to 500 tons quarterly the recommendations offer a sliding scale of reductions. It applies the percentage cut of 5% with the first twenty-five tons exempt, working out into actual percentage cuts figured on the entire consumption, including the twenty-five tons exempt, as follows: Users of twenty-five tons, no cut; users of fifty tons, a cut of 2.5%; seventy-five tons, 3.33%; 100 tons, 3.75%; 200 tons, 4.33%; 300 tons, 4.6%; 400 tons, 4.7%; 500 tons, 4.8%.

The recommendation for an inventory reduction to fifty days would apply throughout the nation except west of the Rockies and south of the northern border of North Carolina, where the seventy-five-day maximum would be retained.

Investigating Price Bros. Strikes

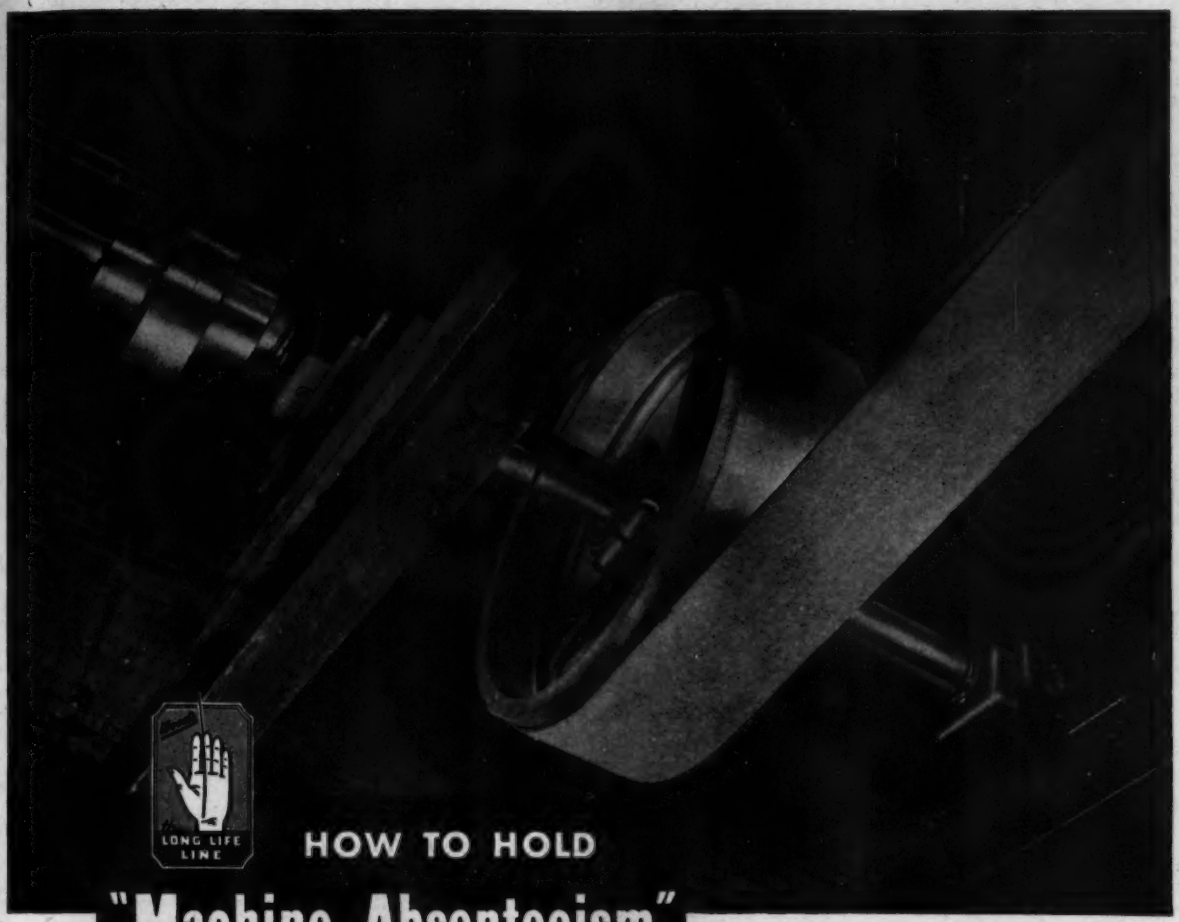
[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., June 21, 1943—A Quebec government commission has been investigating the strikes which for a time held up operations in the River Bend, Kenogami and Jonquieres newsprint mills of Price Brothers and Co. The strikes were caused by jurisdictional disputes among labor unions. The commission has brought the investigation to an abrupt end because, after sitting for some time, it decided that continuation of the investigation would result "in prolonging an acrimonious trial susceptible of creating resentment among working classes." It was stated that factums containing respective suggestions to achieve improper labor relations will be in the hands of the commission by July 15. Towards the latter part of next month, it was proposed, representatives of the factors involved will be assembled at a round table discussion when conflicting ideas will be studied and a satisfactory settlement attempted.

Concluding remarks by respective counsel admitted that mistakes had been made by all sides "in good faith," and emphasized, as Toussaint McNicoll representing the National Catholic Syndicates, described it, that "Price Brothers has always done everything possible to provide its employees with the best possible material working conditions and has so succeeded that its workmen have no grievances in this respect. We also believe that it is inexact, even unjust, to pretend that the company wished to starve its employees during the recent strike."

Appoint Seattle Distributor

The West Coast Paper Company of Seattle, Wash., has been appointed distributor in that area of Escort Ledger and Machine Posting, a 50% new rag paper made by the L. L. Brown Paper Company, Adams, Mass. This paper serves all requirements not only of a ledger but of a machine posting paper as well.



LONG LIFE LINE

HOW TO HOLD

"Machine Absenteeism"

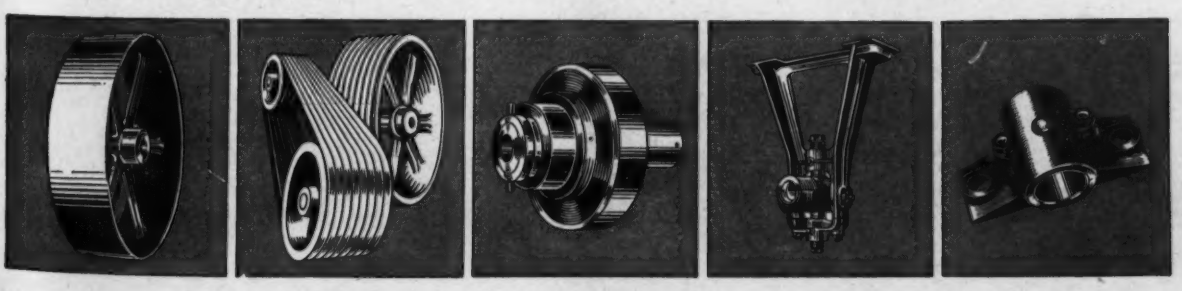
TO A MINIMUM

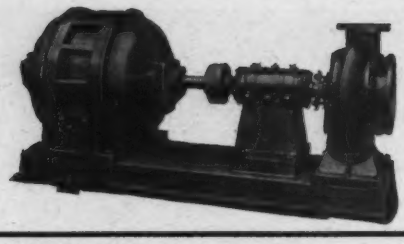
Through four wars—and four-score years of peace—our primary stock in trade has been good engineering . . . the design, manufacture and installation of power transmission devices that assure our customers of long-lived, power-thrifty and completely satisfactory *performance.* Let us show you how WOOD'S engineering experience holds "machine absenteeism" to a minimum. Write us today.

T. B. Wood's SONS COMPANY
CHAMBERSBURG, PA.

EVERYTHING IN TRANSMISSION
Bearings · Collars · Clutches · Couplings · Contactors
Hangers · Pillow Blocks · Pulleys · V-Belt Sheaves
and Complete Drives

BRANCH OFFICES
387-391 Atlantic Ave., Boston, Mass.
94 Plane Street, Newark, N. J.
425 First Ave. Pittsburgh, Pa.





Fighters on the WARREN PUMP Production Front . . . No. 3 of a Series

CHARLIE DOESN'T HAVE TO DO IT BUT HE DOES IT . . FOR UNCLE SAM

Charlie Ball was, and is now again, a Warren Pump toolmaker extraordinary. It's this way. After more than 30 years of loyal, skillful service here at Warren, Charlie retired to take his well-earned ease . . . or do whatever else he pleased. When our country was attacked . . . our Navy, our Merchant Marine, our War Industries needed more and more Warren Pumps. And Charlie, prompted only by his heart and patriotism, came back to help. With all his skill and experience, he is making a real contribution to the defeat of the Axis.

Charlie Ball and Warren Pumps have much in common . . . both are "built to fit the job" and can be counted upon for a long lifetime of reliable and economical performance.

While Warren production is now devoted to vital defense work, we are still in a position to furnish needed repairs in accordance with War Production Board rulings.

WARREN PUMPS

WARREN STEAM PUMP COMPANY, INC.
WARREN, MASSACHUSETTS

Wrapping Situation Acute

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., June 21, 1943 —The carton and wrapping paper situation in this section has become so acute, officials of various governmental agencies have issued a public appeal for all users of these items to save them after they have filled their first purpose. The same officials say that unlike the paper saving drive of last year, this drive is primarily for the two items named only.

Essential and strictly war industries are taking much of the carton output. The fruit and vegetable industry in this section now is actively demanding its share. Agricultural experts estimate that quite a bit of the Indiana fruit and vegetable crop will be sold at the home sources at a loss or will be wasted because of lack of containers. More and more in the last few years these two marketable essentials have depended on the paper carton, having been weaned away from wood to a large extent in the last three years. And now wood has become so scarce and expensive, its use would increase prices considerably to the grower.

Demand for building paper and roofing continued to lag last week. It becomes more apparent that these items will not be sold to any great extent this year. There will be some demand for roofing solely for repair work which will come under the $200 limit where no priorities are needed, but the volume of new construction will be negligible.

The fine paper market last week continued firm with a good demand for all the popular items.

Little change has been seen in newsprint demand. In spite of war conditions, the larger Indiana papers are showing only a slight loss in linage from a year ago.

Rag demand here was improving last week with most demand coming for old cotton rags from roofing makers. Better grade rags were in some demand, but there was no undue activity in the market.

Forest Fire Stamps

"Paper is in the thick of the war. Every phase of our war economy and our military operations somewhere along the line owes its effectiveness, and often its existence, to paper."

So states John G. Strange, secretary of the Institute of Paper Chemistry writing in *American Forests* magazine for June. His article—"Paper At War"—points out the new and the old ways in which this product of the forest is helping to forge victory in the production lines and on the battlefronts.

Production lines, however, can be completely upset by that arch enemy —forest fire. This year the nation faces a real forest fire emergency and to meet war needs this red menace must be kept out of the woods for every forest fire can be considered an aid to the enemy.

The American Forestry Association for a number of years has found the distribution of Forest Fire Prevention Poster Stamps a most effective method of arousing public interest against the fire danger.

Many of the leading paper and pulp companies are already using these stamps, including: Champion Paper and Fibre Company, Field Pulpwood Company, Finch, Pryun and Company, Inc., Fitchburg Paper Company, Great Northern Paper Company, Gulf States Paper Company, Halifax Paper Company, Minnesota and Ontario Paper Company, St. Croix Paper Company, Sterling Pulp and Paper Company, West Virginia Pulp and Paper Company, Union Bag and Paper Company, S. D Warren Company.

News . . .

★

UFORMITE 466

. . . A UREA FORMALDEHYDE RESIN SOLUTION FOR BEATER APPLICATION IN WET-STRENGTH PAPER PRODUCTION

★

DEVELOPED in the Resinous Products & Chemical Company laboratories this new addition to the UFORMITE family is designed for application at the wet end of the paper machine. Large scale production runs have proved that UFORMITE 466 not only increases the wet-strength of paper but improves dry-strength as well. UFORMITE 466 requires no mixing or compounding, no changes in processing. It is simply a matter of adding the resin solution to the stock before or after alum addition.

The improved strength characteristics in many cases are noted as the sheet comes from the machine, although it may be further increased by aging.

Write today for technical literature and samples of this new resin for paper treatment . . . UFORMITE 466.

THE UFORMITES FOR PAPER TREATMENT

UFORMITE 430 and UFORMITE 500 for resin fortified glues for the manufacture of weatherproof corrugated and solid fibreboard.

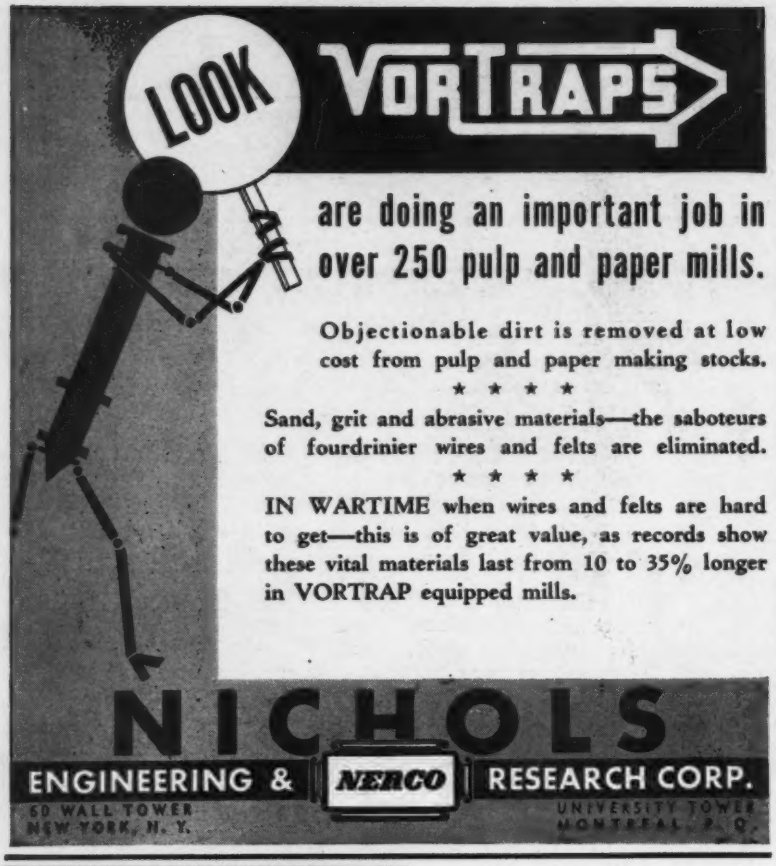
UFORMITE 466 urea formaldehyde type resin for increasing wet-strength at moderate cost.

UFORMITE 449 for improving wet-strength of paper, through tub sizing operations.

UFORMITE 412-A, a urea formaldehyde type resin for laminating work.

THE RESINOUS PRODUCTS & CHEMICAL COMPANY

WASHINGTON SQUARE, PHILADELPHIA, PA.


LOOK
VORTRAPS
are doing an important job in over 250 pulp and paper mills.
Objectionable dirt is removed at low cost from pulp and paper making stocks.
★ ★ ★ ★
Sand, grit and abrasive materials—the saboteurs of fourdrinier wires and felts are eliminated.
★ ★ ★ ★
IN WARTIME when wires and felts are hard to get—this is of great value, as records show these vital materials last from 10 to 35% longer in VORTRAP equipped mills.
NICHOLS
ENGINEERING & NERCO RESEARCH CORP.
60 WALL TOWER NEW YORK, N. Y.
UNIVERSITY TOWER MONTREAL, P. Q.

STEBBINS LININGS
and TILE TANKS
assure LONG LIFE and
LOW MAINTENANCE
. . . because of their sound design, use of chemically correct materials and expert installation.
Whatever YOUR problem may be —a relining, a repair, or a new installation — consult STEBBINS for quick, competent and complete service backed by more than 58 years of experience.
SEMCO
Stebbins Engineering and Manufacturing Company
370 EASTERN BLVD. WATERTOWN, N. Y.

Wants Pulp Mill

Neil Cooney, pioneer Grays Harbor lumberman, who belonged to the lusty, roaring days of the Pacific Northwest lumber industry, took measures before his death, on May 8, to insure the future of the town of Cosmopolis, where he made his fortune and bore a leading part for 55 years.

The measures he took were characteristic—

He provided that $100,000 in cash and a splendid industrial site of more than 500 acres, with ample frontage on deep water, should be given to the firm or individual or group that would build a pulp mill of not less than 150 tons daily capacity at Cosmopolis. The money is in the bank. The title to the site is ready.

When Neil Cooney wanted anything done, he wanted it done promptly, for he was impatient of delay and objections, and it was characteristic also that he provided the projected pulp mill should be under contract within seven months after his death. Just as he was quick in his own actions, he wanted quick action in this matter. When he conceived an enterprise, it was half way to completion so far as he was concerned. If he believed it could be accomplished, he brushed aside obstacles. If one way should be blocked, he tried another, for he always considered there was a way. Priorities or any other matter that might stand in the way of pulp mill construction at this time would not bother him.

Mr. Cooney came up the hard way. A Canadian by birth, and a ship's carpenter by trade, he came to Cosmopolis in 1888. In a year he was outside superintendent for the Grays Harbor Commercial Company, in a few more years he was assistant to the general manager, then general manager and finally sole owner of the operation. The mill was suspended and razed in 1929, and then Cooney bought from the original owners the mill site, other property in Cosmopolis and timber nearby. He held it all intact against the day, which he foresaw, when the timber industry would be something more than sawmills and producing many other articles than lumber. He contended that Cosmopolis was the best possible location for a large manufacturing concern, and he had great faith in the future of the pulp and paper industry.

Mr. Cooney had no great amount of formal school education, but he had a sharp, penetrating mind. He

had few peers in getting to the root of any proposition, either in business or public affairs. He could strip a statement to its core and put it in his own blunt language until the facts stood out stark and bare. He knew the lumber business thoroughly and when it came to other businesses in which he might be interested for investment or other purposes, he made it his business to know them too. He knew men also, and could appraise them as he would a balance sheet. He belonged to the era of rugged individualists, and he was among the most rugged. He placed self reliance high on his list of virtues and that is reflected in the requirements he attached to his bequest for the benefit of Cosmopolis. There have been few more picturesque figures in the lumber industry than Mr. Cooney.

Aberdeen, sister city of Cosmopolis, has undertaken through the Aberdeen Chamber of Commerce a national campaign to publicize the unique "Cooney offer" and to assist Cosmopolis in securing the industry Mr. Cooney sought to provide for the town. A page advertisement in this issue carries the message.

Patent Conveyor Belting

A patent has recently been granted on its transcord breaker, used in constructing conveyor belting, it is announced by the B. F. Goodrich Company.

Principal feature of the transcord breaker is that the breaker cords are placed across the belt width, rather than parallel with the cords of the belt itself. This provides greater resistance to cutting action from materials striking the belt, which most often move faster or slower than the belt itself.

The transcord breaker also provides much greater adhesion between cover and carcass than the regular breaker construction. Tests of both types on conveyors in heavy duty service have definitely proved this. Two other advantages of the patented construction are: It tends to stop most cuts and gouges before they penetrate to the belt carcass. The transcord breaker is usually placed a short distance above the top ply, leaving a protective layer of rubber between breaker and carcass.

The patented construction prevents distortion of the rubber cover beyond its elastic limit because of severe impact. Rubber is susceptible to cutting or gouging under extreme tension.

Printing was first practised in the American Colonies at Cambridge, Massachusetts, in 1638, by Stephen Daye. The press belonged to the Rev. Jose Glover who died during the voyage to Boston. His widow married President Dunster of Harvard College and so the press came under his control, and was called The University Press.

The arts and crafts have flourished ever since in New England. New Englanders have always taken pride in their manufacturing skills, handed down from generation to generation.

DRAPER BROTHERS COMPANY, established in 1856, are no exception to this rule. Having a reputation to sustain is a constant stimulus to them to produce the best and most dependable papermakers' felts — **DRAPER FELTS.**

Draper Felts Favor Efficiency

DRAPER BROTHERS COMPANY

Woolen Manufacturers Since 1856

CANTON, MASS.

OUR REPRESENTATIVES to serve you
L. H. BREYFOGLE Kalamazoo, Mich.
C. K. BEECHER Delaware, Ohio
W. L. CAMPBELL Savannah, Ga.
E.R. LELOFF Vancouver, Wash.
RALPH E. BRIGGS Canton, Mass.

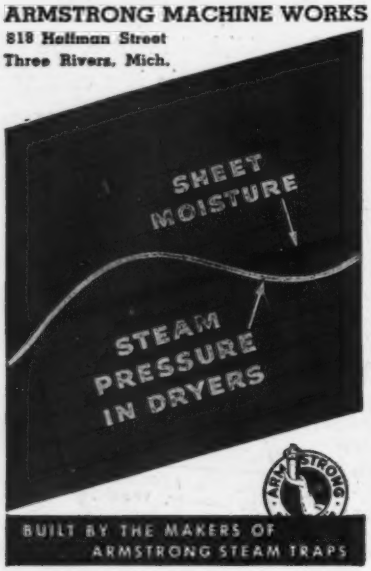
THIS REGULATOR VARIES STEAM PRESSURE

to maintain UNIFORM Sheet Moisture Content

BY automatically varying the pressure, and hence temperature, in your driers, the Armstrong-Stamm Moisture Control System compensates for differences in moisture content of the wet sheet and provides a *uniformly* dry sheet. This System has produced outstanding results in many mills. It can do the same for you.

If you are interested in learning about this unique pressure regulator that provides not a *uniform pressure*, but a *controlled pressure variation*, write for literature today.

ARMSTRONG-STAMM PAPER MILL ENGINEERING DIVISION
ARMSTRONG MACHINE WORKS
818 Hoffman Street
Three Rivers, Mich.



Recommendations for Pulp Distribution

George R. Wallace, president of the Association of Pulp Consumers, Inc. with headquarters in Washington, D. C., announced that the board of directors of the association had submitted eight recommendations with reference to the use and distribution of wood pulp to Arthur C. Wakeman, director of the Pulp and Paper Division of the War Production Board. Mr. Wallace stated that these recommendations, which have been approved by the board of directors of the association, were for the purpose of making available sufficient wood pulp to provide adequately for military and civilian needs, and to assure an equitable distribution of the declining supply of wood pulp. The recommendations are as follows:

1. That each government agency give every possible assistance in making available the manpower, trucks, gasoline, operating supplies, etc. necessary to produce and transport an adequate supply of pulpwood for use of both the market and integrated domestic wood pulp mills.

2. That exports of wood pulp be restricted to the quantities necessary for non-paper uses, and that wood pulp intended for the production of paper and paper board in other countries be processed into paper and paper board in the United States and exported as paper and paper board in cases where such a procedure will assist in preventing the closing of domestic paper and paper board mills.

3. That all wood pulp required for nitrating, Lend-Lease and other government sponsored non-domestic paper uses be furnished by the integrated pulp mills and the market pulp mills in accordance with their percentage of the total domestic wood pulp production.

4. That consumers of paper and paper board be required, through the adoption of simplification and other programs, to conserve virgin wood pulp by substituting papers and boards using less virgin wood pulp wherever possible.

5. That the wood pulp available for the domestic production of paper and paper board be allocated in accordance with the essentiality of the papers and boards produced by the individual paper and paper board mills, giving due consideration to the quantity of paper or paper board which can be produced from a given quantity of wood pulp.

6. That paper and paper board mills using increased quantities of substitute fibrous materials be rewarded by permitting them to operate additional machine hours in proportion to the increased use of substitute fibrous materials, and that no paper or paper board mill be penalized in its supply of virgin pulp because of its increased use of substitute fibrous materials.

7. That as long as substitutions for virgin wood pulp are necessary all orders and specifications which discourage the use of substitute fibers should be revoked or modified so as to permit maximum use of substitute fibers.

8. That all restrictions be removed from the manufacture of papers and paper boards which do not contain virgin wood pulp.

In his letter to Mr. Wakeman, Mr. Wallace pointed out that the Association of Pulp Consumers represents 234 paper and paper board mills which have an annual capacity of 4,745,000 tons of paper and paper board. He stated that the members of the association are collectively and individually dedicated to making every contribution to winning the war and that it was believed that the adoption of the recommendations would enable the industry to meet the military, naval and civilian requirements of paper and paper board.

Mr. Wallace is president of the Fitchburg Paper Company, Fitchburg, Mass., and has been president of the Association of Pulp Consumers, Inc. since it was incorporated in March, 1941. While the association is one of the latest to enter the field, it has more individual member mills than any other paper or paper board association in the United States.

A. G. Pounsford Honored

CINCINNATI, Ohio, June 21, 1943—Arthur G. Pounsford, 48, who was born and reared at Cincinnati and graduated from the Ohio Military Institute at College Hill, has just been honored by the King of England by being made a member of the Order of the British Empire.

Mr. Pounsford is the son of Harry G. Pounsford, Belmont Avenue, College Hill, president of the Pounsford Stationery Company and a director of the Champion Paper and Fibre Company.

A. G. Pounsford now lives at Port Arthur, Canada, where he is general manager of Provincial Paper, Ltd., and one of the leading citizens of the community.

Mr. Pounsford served as chairman of four victory loan campaigns in

Port Arthur and has been appointed by the Canadian government to have charge of a vast wood fuel production program in that region.

The honor from the King was bestowed "for patriotic and philanthropic accomplishments" for which Pounsford has been outstanding at Port Arthur. Appointment to the Order of the British Empire in Canada is the equivalent to the English title of Sir. The honor is usually conferred in Buckingham Palace, London, but because of the war it came from the King, through the Governor General of Canada. The decoration entitles the recipient to a crest, should he desire it, together with the British Empire Cross of Silver, and to wear the purple ribbon at state functions.

Mr. Pounsford, after leaving OMI here, studied engineering at Cornell, was chief engineer for the Champion Paper and Fibre Company at Canton, N. C., then erected pulp and paper plants for Provincial Paper, Ltd., at Port Arthur, and is now general manager of that company. He has become a Canadian citizen, for he is making Port Arthur his permanent home. His wife is the former Mabel Tweston of Philadelphia.

New All-Fiber Can

Development of a wartime all-fiber lap-seam can for packaging baking powder is reported by the American Can Company. This can, made in 5-pound and 10-pound sizes, has a reclosure top. This is used to protect the baking powder after an opening is cut in the semi-circular scoring in the permanent top of the can.

Wide acceptance of this package is reported by W. C. Stolk, general sales manager of the Can Company, who said the package ships well and provides a shelf life that has proven satisfactory, though of course not as great as that of metal cans. Before the war several of the baking powder manufacturers made their own all-metal cans ranging from the 8-ounce to the 10-pound size. Since the war, however, practically all of the baking powder industry has discontinued making their own cans because of restrictions in the use of metal and equipment to produce metal and fiber, or all-fiber cans.

Cans made to hold 16 to 22 ounces have fiber sides and ends made from scrap metal. The larger size cans, however, must be all fiber; therefore, these cans are being produced by can manufacturers who expect a large post-war volume in this new field.

These Digester Parts *Withstand Corrosion and High Temperature*

Frequent replacement of the metal parts in digesters is expensive and interruptions of production add sharply to costs. Naturally, the sulfite process develops a severely corrosive condition which, combined with high operating temperatures, is ruinous to many metals. Yet high replacement costs are no longer regarded as a necessary evil by operators who have learned to specify Amsco Alloy for the metallic parts and fittings of their digesters.

Amsco Alloy was developed expressly to resist high temperatures and corrosion, and it is available in a number of analyses to meet a wide range of conditions. Where both corrosion and high heat are encountered, as in digester parts, analysis F-12 alloy is recommended. This chromium-nickel alloy is moderate in price and easily machinable. Its residual ductility, after having been subjected to stresses at elevated temperatures, greatly reduces the incidence of fracture.

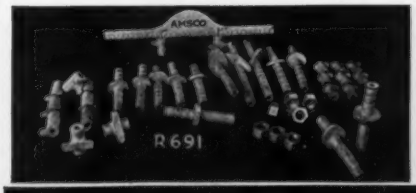
Amsco Alloy digester parts in service include sleeves, steam nozzles, gage glass plugs and fittings, blow valve bodies, wedges and seat rings and valve discs. These parts have long service life and afford greater ultimate economy than parts of less expensive metals which do not have the heat and corrosion resistance combined with ductility which makes Amsco Alloy F-12 *the sulfite paper mill's own alloy*. This is confirmed by T.A.P.P.I.'s analysis recommendations for materials of this type and for this service.

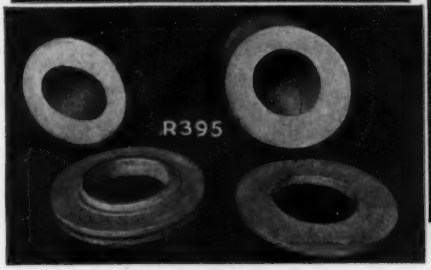
The long life of these Amsco Alloy parts helps to conserve critical metal, as does also the fact that castings with thinner sections can more judiciously be made of Amsco Alloy than of less suitable metals.

Write for Bulletin No. 108 containing full information.

R-691 F-12 Gage Glass Plugs and Fittings.

R-395 Wedges and Seat Rings of Amsco Alloy F-12.





Amsco
AMERICAN MANGANESE STEEL DIVISION
Chicago Heights, Illinois
FOUNDRIES AT CHICAGO HEIGHTS, ILL.; NEW CASTLE, DEL.; DENVER, COLO.; OAKLAND, CALIF.; LOS ANGELES, CALIF.; ST. LOUIS, MO.
OFFICES IN PRINCIPAL CITIES

AMERICAN
Brake Shoe
COMPANY

PAPER TRADE JOURNAL

This Reg. U. S. Pat. Off.

Henry J. Berger

EDITOR

Vol. 116 June 24, 1943 No. 25

COMING EVENTS IN PAPER INDUSTRY

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Fall Meeting, Palmer House, Chicago, September 21-24, 1943.

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

INDUSTRIAL SCRAP

Demands of the great global conflict being waged requires huge quantities of materials and products in excess of any previous wars. The commitments of the United States as the "arsenal of Democracy" are extremely heavy. Waste in every form must be eliminated so far as possible. Conservation and salvage of vital materials is highly essential. As a constant flow of raw materials must be maintained to provide a high production ratio of war materials of all kinds, the collection of scrap, particularly metals, must go on continuously. A collection drive now and then is not enough. All needed waste materials must be salvaged from day to day. If this is done the war production of the country will be maintained at a high level.

A statement of the present Business and Industrial Scrap Campaign which ends July 1, has been issued by The Business Press Industrial Scrap Committee, 50 Rockefeller Plaza, New York. It states that the quota of 9,300,000 tons of purchased scrap in the first six months of 1943, as set by Paul C. Cabot, Salvage Director, War Production Board, will be fulfilled. The committee also states that the business press deserves a rousing vote of thanks for its cooperative effort in supporting the current drive. A clear presentment of the great importance attached to the general collection of scrap appeared in the *Waste Trade Journal of April 24*, under the title of "Needed—a larger scrap iron blood bank," as follows: "There has been a lot of loose thinking with respect to the scrap iron and steel situation because the United States Bureau of Mines figures show that the domestic stocks of iron and steel scrap at consumers', suppliers, and producers' plants have averaged about 7,000,000 tons. This has given rise to the mistaken notion that the present scrap inventory is sufficient and that steel mills will have no difficulty in getting all the scrap steel that they may need. . . . It has tended to create a complacent attitude on the part of the industrial plants, farmers and housewives that they need no longer put forth unusual efforts to get out any more scrap. . . . It is conservatively estimated that the steel industry will consume approximately 2,000,000 net tons of purchased scrap each month this year or a total of about 24,000,000 net tons. It is important to bear in mind that this is purchased scrap that must come from households, from automobile graveyards, from industrial plants, from farms and from the highways and byways of the nation. This question then resolves itself to this: Will they be able to get this tonnage when and where needed? . . . One cannot turn on a tap and expect to get a flow of scrap. It will take painstaking efforts and months of careful planning to build up an adequate reserve. . . . No one knows how long this war will last. We must be prepared for any eventualities. The only insurance against a scrap iron shortage is to build up an adequate reserve. . . . What is needed is a definite goal, a stockpile, or a scrap iron 'blood bank' that must be achieved within a specified time. . . . Unless this is done and done quickly and unless the appropriate machinery is put into immediate action to assure this stockpile, the consequences may well be disastrous. This is no time to engage in wishful thinking or to take chances."

The paper and pulp industry has contributed millions of tons of home scrap metals and continues to do so. The difference between purchased scrap and what is known as home scrap is that, purchased scrap is what the steel mills have to buy outside; home scrap is that which develops within the mill's own manufacturing operation. Many concerns in the paper industry have developed their own method of salvaging scrap. One concern uses a truck equipped with a jib crane and chain fall for handling heavy, bulky material, and a smaller truck for lighter scrap. To avoid bookkeeping complications, all sales of scrap are credited to its salvage department. The method used in this case may be summarized as follows: (1) Collections are systematized, the scrap is sorted and cleaned. (2) Prompt decision is made whether a machine should be saved or salvaged. If it is to be scrapped, it is broken up into its component parts, scrapping and selling useless parts and reconditioning usable parts. (3) In the case of individual units for reconditioning, repair and reuse, limitation to a few or one maker is preferred. (4) Reconditioned parts must be clean, painted for protection, and stored where they are accessible. (5) The salvage system is closely tied up with the central stock room. (6) This provides simple bookkeeping and enables the millwright to readily secure any desired part without the delay which would be required in searching through a general scrap pile.

In Bulletin No. 9 issued by the Business Industrial Scrap Committee, the committee points out that "The business and industrial Scrap Campaign is by no means ceasing on July 1. The war is by no means won. With the opening of the Second Front we have a big job facing us. It is not going to be easy. The necessity of keeping the scrap flowing to war industry is of greater importance now than ever before, and your continued 'all-out' cooperation is absolutely essential."

Denies Exploitative Charges

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., June 21, 1943—There has been some discussion in the Quebec Legislature on a charge by Maurice Duplessis that there had been connivance prejudicial to Quebec between the power controller and paper interests in other provinces by which the dispersal of a number of paper mill employees in the Three Rivers and other districts had been brought about. Mr. Duplessis asked the government to protest the state of affairs. He held that workmen forced to leave their jobs because of rationing had lost their homes and that the work on post-war reconstruction was being hampered by the disposal. Paper production was a natural resource. and as such was of no business to the Federal government. It was the biggest industry in the province with 56 mills, 17,387 employees at the plants and 50,000 more in the bush. It was also a prime medium of obtaining foreign exchange, but "plots" were afoot to stall production while Finland, Norway and Sweden could not supply the needs.

Hon. Wilfrid Hamel, Minister of Lands and Forests, denied the charge, saying Quebec was in a preferred position in this question and was the only province where the power was not rationed for paper due to new developments. He admitted the rationing of production of paper was a serious problem in Quebec and that he had held several conferences with the Federal authorities. "Quebec is the third largest producer of electricity in the world and now has power for all its needs," he said.

When the rationing of electricity, with its Sunday Observance Act facets, had been discussed the government had waited upon a report from its electricity board and found there was a shortage of 300,000 horse-power, said the Minister, and that it must be conserved for the most pressing needs.

To close the discussion, after Duplessis held that the government should make certain that such a situation not be repeated, Premier Godbout declared that instead of being exploited, the province now was in a preferred position.

International Calls Bonds

The Bankers Trust Company, as trustee, has drawn by lot for redemption on July 1, 1943, out of sinking fund moneys $95,000 principal amount of International Paper Company first and refunding 5% sinking fund mortgage bonds, Series A and B, at 102½ and accrued interest.

Bankers Trust Company has drawn for redemption on July 1, out of sinking funds moneys, $95,000 principal amount of International Paper Company first and refunding 5% sinking fund mortgage bonds, Series A and B, at 102½ and accrued interest.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1943		Corresponding Weeks—1942	
May 8	90.6	May 9	98.2
May 15	91.4	May 16	97.8
May 22	92.7	May 23	93.9
May 29	92.7	May 30	91.4
June 5	85.5	June 6	90.2
(Includes Memorial Day)		(Includes Memorial Day)	
June 12	*88.3*	June 13	88.4

COMPARATIVELY MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1942	104.5	103.9	102.9	100.4	95.3	87.4	75.8
1943	87.2	88.8	89.5	88.7	*91.8*	....	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1942	80.8	82.8	90.6	86.9	80.1	90.4
1943	....	....	....	....	....	....

COMPARATIVELY YEARLY SUMMARIES

	1936	1937	1938	1939	1940	1941	1942	1943
Year to Date..	78.2	89.2	67.4	79.7	86.6	92.8	100.3	*89.0*
Year Average..	80.4	79.8	71.5	83.4	85.6	97.4	90.4	....

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1937	83	89	89	91	88	80	69	77	72	70	57	47	75
1938	56	63	63	60	60	59	59	60	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	82	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	75	76	81	82	77	84
1943	86	88	94	94	*96*	..	..	..	..	..	..	..	..

Week ending May 8, 1943—96 — Week ending May 29, 1943—95
Week ending May 15, 1943—96 — Week ending June 5, 1943—92
Week ending May 22, 1943—96 — Week ending June 12, 1943—97

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

Publishers Act on Pulpwood

In an effort to overcome the serious threat of a shortage of pulpwood a committee of newspapers has been formed to cooperate in cutting more pulpwood, it was announced by the American Newspaper Publishers Association, 370 Lexington avenue.

Walter M. Dear, co-publisher of "The Jersey Journal," Jersey City, who has been appointed chairman of the committee, said that pulp production in the United States was off more than 22% in the first four months of this year and that Canadian and Newfoundland production is declining at an alarming rate.

The urgency for an immediate response by farmers and woodsmen is emphasized in a recent statement by E. W. Tinker, executive secretary of the American Paper and Pulp Association. He reported that pulpwood inventories at the mills are being depleted at the rate of 130,000 cords a month and that contracts for wood to be consumed in 1944 are 40% below normal.

Buys Fillmore & Slade Co.

BENNINGTON, Vt., June 15, 1943—The North Bennington Paper Mills, Inc. is the name of a new corporation that has been formed to buy the Fillmore Slade mill and land at Bennington Falls. The incorporators of the company are John W. Bright and Robert B. Stevens of Greenwich and John F. McKeon of North Bennington.

The founders and long-time owners of the Fillmore and Slade mill were Henry D. Fillmore and Burnside G. Slade, both of whom have been dead for a number of years. The recent owner of the property has been Mrs. John F. McKeon.

Basic Material and Processing *Control* Assure Uniform High Quality *Sulphate of Alumina*

Here at Cyanamid, Sulphate of Alumina (paper makers' alum), is produced literally "from the ground up." The basic material, bauxite, is mined from Cyanamid's own deposits. While producing adequate quantities of bauxite for the manufacture of Aluminum Sulphate, Cyanamid at the present time is also mining large additional quantities to go into the manufacture of metallic aluminum for many timely uses.

Similarly, the sulphuric acid used, upon which the making of Sulphate of Alumina depends, is produced largely by Cyanamid. From the beginning, therefore, the manufacture of Aluminum Sulphate by American Cyanamid is carried out by skilled operators under strict technical control assuring the highest standards of quality and uniformity, characteristic of Cyanamid products. It is on its reliability that Cyanamid Sulphate of Alumina has built its reputation throughout the paper industry.

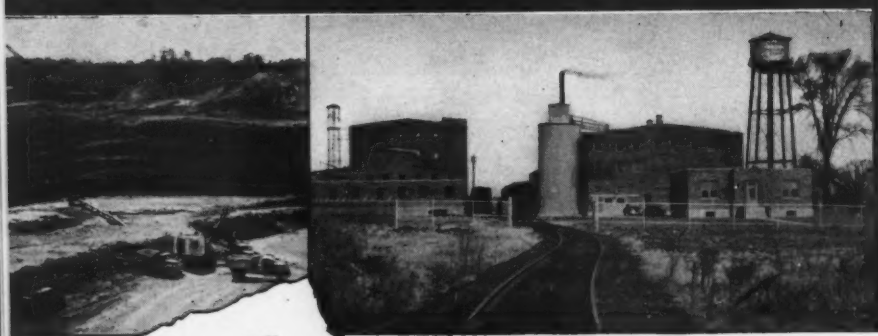
Today, there are eight plants of the American Cyanamid & Chemical Corporation devoted to producing the various types of Sulphate of Alumina to meet specific requirements. These plants, strategically located for prompt and economical delivery, assure users of this product of continuing supplies.

A Cyanamid representative will be glad to discuss application of Cyanamid quality Sulphate of Alumina to the solution of your paper chemical problems. There is no obligation.

Solution of Sulphate of Alumina at 60° F

°Bé	Sp. Gr.	% Al_2O_3	Lbs. Al_2O_3 per cu. ft.	Lbs. 17% Alum/cu. ft.
1.0	1.0069	0.20	0.13	0.74
2.0	1.0140	0.49	0.28	1.49
3.0	1.0211	0.61	0.39	2.29
4.0	1.0284	0.93	0.53	3.13
5.0	1.0357	1.04	0.67	3.95
6.0	1.0432	1.26	0.82	4.82
7.0	1.0507	1.48	0.97	5.71
8.0	1.0584	1.70	1.12	6.60
9.0	1.0662	1.92	1.28	7.51
10.0	1.0741	2.14	1.43	8.39
11.0	1.0821	2.39	1.58	9.29
12.0	1.0902	2.54	1.73	10.16
13.0	1.0985	2.75	1.89	11.09
14.0	1.1069	2.97	2.05	12.07
15.0	1.1154	3.21	2.23	13.19
16.0	1.1240	3.43	2.41	14.15
17.0	1.1328	3.66	2.59	15.22
18.0	1.1419	3.89	2.77	16.30
19.0	1.1508	4.16	2.99	17.57
20.0	1.1599	4.36	3.17	18.65
21.0	1.1694	4.62	3.36	19.74
22.0	1.1789	4.82	3.55	20.86
23.0	1.1885	5.04	3.74	21.99
24.0	1.1983	5.27	3.94	23.18
25.0	1.2083	5.50	4.15	24.39
26.0	1.2185	5.75	4.37	25.71
27.0	1.2288	6.00	4.60	27.06
28.0	1.2393	6.25	4.83	28.41
29.0	1.2500	6.49	5.06	29.78
30.0	1.2609	6.74	5.30	31.19
31.0	1.2719	7.00	5.56	32.68
32.0	1.2832	7.25	5.81	34.15
33.0	1.2946	7.51	6.07	35.69
34.0	1.3063	7.78	6.34	37.30
35.0	1.3182	8.05	6.62	38.94

Shown below, left, is a view of one of Cyanamid's large domestic bauxite deposits, in which the raw material is being surface-mined. One of Cyanamid's eight plants now devoted to the production of Sulphate of Alumina for the paper industry is shown below, right.



Wax Sizes • Rosin Size • Synthetic Resins • Casein • Alum
Benowax* Corn Starch • Sulphonated Oils • Fillers • Defoamers
Soda Ash • Caustic Soda • Salt Cake Acids • Clays • Satin White
Aerosol* Wetting Agents
Calmicro (Calcium Carbonate) and other Paper Chemicals

*Reg. U.S. Pat. Off.

American Cyanamid & Chemical Corporation

A [illegible] American Cyanamid Company

30 ROCKEFELLER PLAZA • NEW YORK, N. Y.

DISTRICT OFFICES: Boston, Massachusetts; Philadelphia, Pa.; Baltimore, Maryland; Charlotte, North Carolina; Cleveland, Ohio; Chicago, Illinois; Kalamazoo, Michigan; Detroit, Michigan; St. Louis, Missouri; Azusa, California Seattle, Washington

Section of the
TECHNICAL ASSOCIATION
OF THE PULP & PAPER INDUSTRY

Edited by R. G. Macdonald, Secretary

Materials—For Manufacture, Operation, and Maintenance in Wartime*

By James L. Ritchie[1]

Abstract

A nation's material resources and its capacity for the effective utilization of those resources constitute the prime assets of a nation at war. The productive genius of the United States is amply shown by the record.

The tremendous demands of global war, however, does require stringent regulations regarding the flow of materials, use of manpower, the use of materials, and the use of services such as communication, transportation, and power utility so that the war may be brought to a victorious conclusion as quickly as possible.

Recognizing the fact that pulp and paper are vital materials in explosives; protection of foodstuffs, army and navy spare parts, munitions, and other battlefront materiel; for health and sanitation; in photography by the armed forces; in designing and planning war weapons, whether battleship, airplane, or bullet; in communications and instructions; and in necessary civilian activities, the War Production Board, through its Pulp and Paper Division, tries to give the pulp and paper industry its minimum requirements in materials.

A discussion of the various materials factors is given, explaining the difficulties which may be faced in the coming months.

A nation's material resources and its capacity for the effective utilization of those resources, next to the caliber of its fighting men, constitute the prime assets of a nation at war. Control of the world's strategic raw materials, to paraphrase a familiar quotation, makes a full nation; judicious use of those materials, a ready nation; but in the last analysis, it is the quality of a nation's fighting men that insures a free nation.

Although the United Nations are bountifully endowed with material resources, world distribution is not so unbalanced as might be supposed. The British empire and the United States, prior to the war, for example, controlled probably 75% of the world's mineral production. One of the first objectives of Axis conquest was the improvement of its relative position with respect to control of the world's mineral resources. To a marked degree, through conquest, the Axis powers have been able to accomplish their objective.

The effective utilization of material resources by a nation at war presupposes a natural productive genius, unbounding energy in the performance of the task at hand, and a truly sacrificial spirit. The ability of the United Nations to utilize their material resources to advantage has been amply demonstrated. The progress that has been made by the United Nations in converting resources into instruments of war has been unparalleled in world history. There is no need to review the record.

Our raw materials are being effectively forged into swords. The climax of this story of global war will be gloriously written by our fighting forces in the field of battle.

Critical materials are used in the pulp and paper industry for the following purposes:

1. Maintenance and Repair
2. Operating Supplies
3. Production
4. Construction and Facilities

Maintenance and Repair Materials

1. Metals

Because metals constitute the raw material for practically all maintenance and repair requirements, overall metals supply is a definite limiting factor upon the supply of available maintenance and repair materials.

There have been recurrent rumors to the effect that shifts in munition production, adjustments in construction programs, and other factors are resulting in a freer flow of steel. Such rumors are entirely unsupported by fact.

H. G. Batcheller, director of the Steel Division, War Production Board, pointed out in a recent address that demand continues to exceed supply by a wide margin. Indicative of the extent of the shortage are the following cuts from third-quarter requirements recommended by the Steel Division to the Requirements Committee:

Claimant Agency	Recommended Cut, %
War Department	14
Navy Department	20
Maritime Commission	22
Lend Lease	32
Office of Defense Transportation	40

In reporting these cuts, Batcheller stated: "It is

* Presented at the meeting of the American Pulp and Paper Mill Superintendents Association, Hotel Commodore, New York, N. Y., June 15-17, 1943.

[1] Chief, Distribution Section, Pulp and Paper Division, War Production Board, Washington, D. C.

difficult to make these reductions when we know that many of the requirements are not overstatements.

"The steel could be used in the full amounts asked for if we could provide it. The plain fact is that we cannot, and therefore must distribute the steel we have in the places that need it most."

Batcheller's statement will give some conception of the steel supply outlook. The facts as he has presented them certainly do not appear to justify any optimism.

The overall copper outlook is even less promising. In relation to the available supply, military requirements of copper are proportionately far heavier than they are in the case of steel. Consequently, civilian shortages will be proportionately more stringent.

Pulp and Paper Metal Requirements: In relation to the overall metal supply, metal requirements of the pulp and paper industry are, of course, small. The relative size of our metal requirements, as contrasted with the magnitude of war requirements, can best be pictured by a few comparisons:

Every time a new battleship slides down the ways, the copper equivalent of an eight-months' supply of paper machine wire cloth goes to sea.

In two hours' firing time, that battleship will throw 14 miles a volume of steel equivalent in weight to a full calendar quarter's supply of maintenance and repair parts for pulp and paper machinery.

In one hour's time, a flight of 1000 bombers can drop a volume of steel equivalent in weight to a 6 months' supply of maintenance and repair parts for pulp and paper machinery.

Every effort has been made to reduce the pulp and paper industry's consumption of critical materials to a reasonable practicable minimum. In the over-all picture the industry's relative contribution to the war program in the matter of metals conservation will compare favorably with the record of any comparable industry.

And yet, the sacrifices that the industry has been called upon to make have not been unbearable. Necessary maintenance and repair materials have been made available to the entire industry, without regard to essentiality of product. To the best of our knowledge, no appreciable amount of operating time has been lost in the industry due to the lack of maintenance and repair materials. It is our sincere hope that this condition may continue to exist.

2. Facilities

Material shortages are not the only factor to be reckoned with in planning maintenance and repair programs. Deliveries of maintenance and repair materials are delayed fully as frequently because of the fact that the facilities of producers are fully occupied with war work. Shop time, in the case of many items ,is far more critical than the materials from which they are made.

Turbines are a case in point. It is quite apparent that any turbine facilities, that are not employed in meeting demands for lend-lease and war-plant construction, will be fully absorbed in supplying naval and maritime requirements. Similarly, there is little or no slack in the productive facilities available for the manufacture of such items as motors, pumps, valves, compressors, instruments, tractors, lift trucks, and numerous items of general industrial equipment. For the most part, the production of such items for the civilian economy can be accomplished only at the direct expense of the armed services.

There are other items that are procurable, but deliveries of which, due to demands upon productive facilities, are subject to untoward delay. Boiler tubes fall within this category. Steel plate and special forging are other items that may be subject to serious delivery delays because of facilities problems.

In planning maintenance and repair programs, mills, for their own protection, should be fully cognizant of this facilities problem. To the extent that delays can be forecast, they should not seriously interfere with maintenance programs. To the extent that the possibility of delivery delays is not explored as an integral part of a company's maintenance planning, however, operations may be seriously jeopardized. If the delivery expectancy on boiler tubes, for example, is six months, then a paper company in its maintenance planning should contemplate this six months' delay. If it fails to do so, it should not expect the War Production Board to compensate for its negligence with a directive that will result in the disruption of someone else's delivery promise. The importance of carefully planned maintenance programs cannot be too strongly urged. The answer to facilities shortages as well as material shortages lies in forward planning—not in excessive inventories.

Facilities of Pulp and Paper Machinery Manufacturers: The facilities of pulp and paper machinery manufacturers, we are proud to report, are largely converted to war production. Monthly data reports from these producers indicate the progress of their conversion. The record since November is as follows:

Month	War Production, %	Other, %
November, 1942	76.3	23.7
December, 1942	81.9	18.1
January, 1943	83.3	16.7
February, 1943	84.4	15.6
March, 1943	87.9	12.1

The trend, it is apparent, has been toward an even increasing contribution toward *victory*. Credit is due to these machinery manufacturers for the splendid war production job that they have done. I am sure that their unselfish patriotism will not cost them the loyalty of their customers and friends in the paper industry in the reconstruction period ahead.

It is the intent of the suppliers, as well as of the War Production Board, to reserve adequate productive facilities in the shops of the pulp and paper machinery manufacturers to assure continued maintenance for this industry. Up to the limits of this reserve, it is our hope that the war output of these allied industrial plants will continue to expand. The diversion of either materials or shop time from war production at this juncture is no more defensible today than it would have been a year ago.

3. Budgeting of Materials

The Controlled Materials Plan is the device that is currently used by the War Production Board in budgeting and distributing critical metals. In brief, the plan provides for an advance scheduling of metal requirements by established claimant agencies within the government, a weighing of the indicated requirements by a program committee, a balancing of metal supply with metal demand, an allotment of metals to the claimant agencies, and the distribution of metal by the claimant agencies or industry divisions to individual applicants requesting metal for production purposes.

Those suppliers of maintenance and repair parts and operating supplies who are using specified forms of steel, copper and aluminum in their products are operating under this plan. Because of shortages, their allotments of metal are in almost all instances below their indicated quarterly requirements. This means that the supply of maintenance and repair

parts available to the industry will be definitely limited by the supply of metals allotted for their manufacture.

On the other hand, CMP Regulation 5 assigns to the industry a blanket AA-2 rating for the purchase of maintenance and repair parts and operating supplies. This rating may be used to purchase maintenance and repair parts and operating supplies under $1000 in value; for purchases totalling over $1000, the provisions of Limitation Order L-83 require specific War Production Board approval; in addition, CMP Regulation 5 permits use of the AA-2 rating to purchase items of capital equipment valued at $500 or less.

It is apparent that indiscriminate use of this blanket rating to purchase from a limited supply of maintenance, repair, and operating materials would soon create a serious famine. Hence, a cautious use of the blanket MRO rating is imperative. There must not only be strict adherence to the inventory and quantity purchase restrictions of CMP Regulation 5 if the plan is to work; in addition, there must be voluntary cooperation toward a maximum conservation of MRO materials over and above the requirements of law.

Operating Supplies

1. Woods Operations

Shortages of woods labor have accentuated demands for labor-saving woods equipment. At the same time the supply of such equipment in most instances has either been curtailed because of material shortages or is being absorbed by direct military demands.

Tractors. In the case of tractors, for example, 85% of the units produced are reserved for direct military use. The remaining supply is inadequate to meet the requirements of even the most essential war producers. Hope lies chiefly in securing a maximum utilization of those units that are now in operation. Applications for new tractors are filed on WPB Form PD-556; it is indicated, however, that only those with an exceptional pattern of war business will receive favorable treatment.

Trucks and Transport. Trucks have likewise been a problem. Trucks are allocated through the regional offices of the Office of Defense Transportation. Probably no pulpwood producers have received their full requirements. At the same time, requirements have generally been met in part, and there is nothing to indicate that the industry's treatment at the hands of the Office of Defense Transportation Rationing Boards has been other than equitable and fair within the limit of the available supply. The nation's reserve pool of trucks, however, is fast diminishing. Allocation of materials for the manufacture of new vehicles has been urged by the Office of Defense Transportation.

Rail transport facilities and equipment are likewise being heavily taxed. The 1942 revenue ton miles of freight increased 34% over 1941. The ton mile load increase for the first four months of this year was 26.1% greater than for the corresponding period in 1942. It is estimated that carloadings will increase this year by 6% over last year and that the ton mile increase will amount to approximately 15%.

The increased time required for turn-around of freight cars resulting from slowing down in transit has had the effect of a 4.2% decrease in box car supply and a decrease of 6.8% in the size of the open top fleet. These adverse factors offset gains in the field of heavier carloading and make necessary further transportation conservation.

Truck Parts. Lend-lease and military requirements have made heavy inroads into the available supply of truck parts, with the result that local stocks are frequently spotty and unbalanced. Truck parts are available and can be purchased without rating once they have been located. The problem is one of finding the required parts in stock. An effort at getting usable repair parts should be made.

If procurement difficulties are encountered with respect to particular parts, a letter should be addressed to the auto specialist at the nearest War Production Board office. The Automotive Section maintains records relative to the physical location of parts inventories and is in a position to render prompt and effective assistance in the location of requirements. A recent announcement indicates that additional basic raw materials have been allocated for the production of an additional supply of automotive parts.

Power Saws. Manpower shortages have increased the demands for power saws, particularly in the southern area. There are relatively few producers of this type of equipment, and patent rights have been closely held. There is some prospect that productive capacity may be increased through licensing agreements; negotiations toward this end are now pending. Every effort has been made by the Pulp and Paper Division to keep the present producers supplied with materials so that capacity operations may be maintained.

Gasoline. A priority system has been established for the eastern gasoline-shortage area to assure the continuance of essential automotive transportation. The system, based on a list of essential services certified to the Office of Defense Transportation by the War Production Board, will be used in granting supplemental gasoline allotments to commercial vehicles in the shortage area. Additional gasoline will be allotted for essential commercial services that could not be continued under the 40% gasoline ration "stretch out" announced by the O.D.T. at the beginning of the crisis.

Pulpwood, wood pulp, and waste paper are included in the list of essential industries to be accorded preferential treatment in the eastern gasoline-shortage area. Essential industries have been divided into four groups: AA-1 (most critical); A-1 (very critical); A-2 (critical); and A-3 (important). Pulpwood, wood pulp, and waste paper are all classified as A-3 (important). As long as the supply of gasoline in the east remains critical, lesser amounts may be allocated to the lower rated industries than to the higher.

Only services vital to the war effort and the public welfare can be maintained in the eastern gasoline shortage area. ODT has emphasized that even those carriers whose services are listed as essential will not be granted additional gasoline unless they are utilizing their trucks to the fullest extent possible.

Ralph K. Davies, deputy petroleum administrator, has indicated that the critical gasoline shortage in the east cannot be relieved before late this year at the earliest.

The gasoline allowance for the east for the month of May was 356,000 barrels a day. Consumption actually exceeded this allotment, according to Davies, by 100,000 barrels a day. The June allotment, has been cut to 326,000 barrels.

Davies has estimated that the Mississippi Valley floods, which washed out the "big inch" pipeline, cost the east from 5,000,000 to 6,000,000 gallons of car fuel.

In a recent joint statement, Wm. M. Jeffers, rubber director, and Under Secretary of War Robert P. Patterson agreed that America would probably need 90 aviation gasoline plants to keep its war planes flying. Today there are approximately 45 such plants in the country.

2. Plant Operations

Wire Cloth. Allotments of metal for the production of paper machine wire cloth have so far been adequate to insure continued paper machine operation. The wire cloth manufacturers have been most cooperative in supplying basic data for use in the negotiation of allotments.

Even under normal conditions, the production cycle on wire cloth is long. Today not only are wire cloth manufacturing problems aggravated by the natural incidents of war, but inordinate delays in raw material deliveries further complicate production planning. The forward scheduling of wire cloth requirements by the paper mill would go a long way toward simplifying the production problems of the wire cloth industry. Requirements of such items as wire cloth, and indeed of other expendible items such as screen plates, beater bars, and jordan fillings, can be forecast by paper mills with a reasonable degree of accuracy. If forward orders are placed on the basis of such forecasts, the production problems of the manufacturer and the allocation problems of the War Production Board would be simplified. Advance scheduling of wire cloth orders is entirely consistent with WPB Limitation Order L-209 and with the maintenance of minimum practicable working inventories—orders should be periodically rescheduled, if necessary, to adjust for inventory depletion.

3. Fuel Oil

Possible bottlenecks in the transportation of oil threaten the production of companies that are dependent upon fuel oil for their operation.

The following excerpt from a recent report of the Office of War Information will outline the problem:

"Before the diversion of oil tankers to foreign service and the beginning of submarine sinkings, one tanker used to leave the Gulf ports almost every hour with oil for the 17 Eastern states and the District of Columbia, now known as District I. One million, five hundred thousand barrels of oil a day were delivered to that region by water. Customarily only five or six thousand barrels a day were delivered by rail, virtually all of it special products such as asphalt, liquefied petroleum gases, and wax. Now east coast tankers are few and the railroads have taken over eastern oil deliveries in a larger measure than was believed possible. . . . "

"The following is the delivery picture of oil of District I in January, 1943:

800,000 barrels a day by rail (most of it by rail all the way from the oil fields; some, part of the way by pipeline.)
168,350 barrels a day by pipeline.
70,000 barrels a day by barge. (There were no Great Lake oil deliveries in January, the season having ended.)

"In February the first leg of the 24-inch War Emergency Pipeline (the "Big Inch") from Longview, Texas, was opened at Norris City, Illinois, delivering 60,000 barrels a day which are transshipped eastward by tank car, replacing longer tank car and barge deliveries. As new pumps and tanks are installed this amount will increase to 300,000 barrels a day, and within a short time, the line will be extended as far as New York and Philadelphia, making direct pipeline deliveries to these cities. Work on a second big pipeline to the East has begun. Because of increasing military demands, the additional oil entering the East by pipeline will do little to ease the oil shortage as it is felt by the civilian consumer."

Current information indicates that the fuel oil shortage during the coming winter will be as bad, if not worse, than the one that was faced during the early months of 1943.

The Pulp and Paper Division for over a year has urged conversion from fuel oil to coal in the critical eastern area. Many pulp and paper mills have responded and are now in a position to continue operations regardless of oil curtailments. Conversion at this time will have a two-fold effect: (1) it will protect a company's operation, and (2) it will release fuel oil for war uses.

4. Coal

A recent report of the U. S. Bureau of Mines estimated bituminous coal deposits at about 3 trillion tons—enough to last 3,000 years at a billion tons a year. Total output of bituminous coal during 1943 is forecast at approximately 600,000,000 tons.

The Department of the Interior has indicated, however, that mines in the United States must be kept in full operation continuously throughout every month of 1943 in order to provide coal to meet present estimates of the country's war expanded requirements. There are no unused coal mines in the country at the present time, though in some cases manpower shortages make exploitation less than it might be. Requirements for 1943 will be higher than ever before, due to increased conversion from oil, expansion of the steel and coke industries, increased demand for coal-generated power, and the generally increased tempo of war industries. Rationing of coal, however, is not expected unless strikes or severe loss of labor interfere with production and delivery.

During the last war, transportation tieups did cut off coal supplies with consequent disruption of industry. With the cooperation of consumers, however, the railroads expect to be able to fill the 1943 industrial and domestic requirements for both bituminous and anthracite. This can only be done, however, if individual consumers and dealers arrange to take deliveries of coal during the summer months; out of season deliveries will, more than any other single factor, permit increased performance by a limited transportation system.

Conversion from oil to coal, on the one hand, and stockpiling of coal while stockpiling is possible, on the other hand, would seem to afford the best insurance against heat and power problems in this industry during the coming winter.

5. Production Materials

Fibrous Materials. The problem of fibrous material supply has been covered previously by others. It is not within the scope of this paper. Suffice it to say that this problem constitutes perhaps the greatest single threat to sustained paper production. It was properly selected as one of the major themes of this convention.

Chemicals. Chemical and Metallurgical Engineering magazine's Weighted Index showing consumption of chemicals indicates that the pulp and paper industry used 13.4% of the total chemicals consumed in this country during 1941. Next to the fertilizer industry, the pulp and paer industry is the best customer of the chemicals industry.

(a) Bulk Chemicals. Fortunately, most of the bulk chemicals consumed in the industry have up to date been relatively free; there have been no serious procurement problems with respect to such items as soda ash, caustic soda, sulphur, lime, rosin, salt cake, alum, and clay. Nor is it expected that there will be serious war competition for supplies of these materials. If problems do develop, they will probably be caused by manpower or transportation shortages. In the case of caustic soda, tank car shortages have already resulted in the issuance of an order restricting shipments of this product to well defined zones.

(b) CASEIN. With the reduced production this year, estimated new supplies plus inventories during the second half of the year amount to but three months' supply in relation to recent consumption rates. If any inventory reserves are to be maintained, the reduction in use must be even sharper.

There are two factors that might tend to increase the supply of casein: (1) an improved price level, and (2) increased imports.

The price of casein is currently fixed at a level that will prevent the operations of the casein producers from interfering with the projected dried milk program. It is indicated that any price adjustment that can be negotiated will take full cognizance of the requirements of an expanded food program.

The import situation is complicated by shipping shortages. Competition for shipping space from the Argentine is sharp, with many items important to war production competing for space. The amount of shipping space that can be made available during 1943 for casein imports cannot at this time be accurately estimated. The possibility of increased imports of Argentine casein affords the chief hope for an improved casein supply.

(c) STARCH. The following factors will influence the supply of starch, starch products and derivatives available for use in the paper industry.

1. Flood conditions throughout the corn belt will have serious impacts on the overall corn supply.
2. Competing claims upon the corn supply will increase as a result of demands for increased food production. Current price levels encourage the diversion of corn from industrial processing to the feeding of livestock. Corn in the hog is today worth from $1.35 to $1.50 per cwt. as against a ceiling price on corn itself of $1.07.
3. The competing claims of new industrial users are increasing requirements. The alcohol program is a case in point.
4. Imports of tapioca and potato starch, which formerly amounted to 25 to 30% of the total starch supply have, for the most part, been cut off. This will result in additional drains upon corn starch.
5. The casein shortage will result in further drains upon available supplies of corn starch.

As the full impact of these factors is felt, limitation orders restricting consumption of starch in the paper industry will probably have to be written.

(d) PROTECTIVE COATINGS. Shortages are apparent in the supply of glycerine, certain types of wax and other protective coating materials.

Glycerine, amorphous and microcrystalline wax, and other important chemicals used for protective coatings are under complete allocation. Because of increasing demands for war uses the supply will continue to be tight.

Construction Materials

The construction phase of the war effort is drawing to a close. By order of the War Production Board, work has been stopped on numerous war projects because existing productive facilities can absorb the available raw material supplies. Under such conditions there is no justification for expanding productive facilities, except as expansion may prove necessary to properly balance production.

A very limited amount of metal is allotted to the Pulp and Paper Division for construction and facilities. Under present conditions, it has seemed wise to expend these materials in a manner that will expedite and improve woods operations and sustain pulp production since this is where our major problem lies, rather than to expend them for the improvement of paper productive facilities. This is the current policy of the Division.

Conclusion

Summarizing our materials problem, the following conclusions may be drawn:

1. Materials will probably continue to be available for reasonable maintenance and repair of plant facilities.
2. Certain operating supplies will be difficult to procure—of these, gasoline and fuel oil probably afford the most serious threats to production.
3. Production materials other than fibrous materials will probably not seriously affect the overall paper supply, although shortages of certain chemicals will affect the production of certain specialty grades.
4. Materials for new construction and facilities will probably be unobtainable except in very limited amounts for the improvement of pulpwood or woodpulp producing facilities.

To win this war of the continents, there must be united action, united sacrifice, and united zeal for the common cause. Our goal is clear; it is to win this war in the least possible time with the least possible loss of life and waste of materials. One thousand and twenty American soldiers were killed or seriously wounded in action during the last morning of the First World War, according to casualty lists published in the *New York Times*. Any course of action or inaction that delays the dawn of the new peace even for an hour is murderous.

The war is coming to a climactic test of will and spirit. Victory will fall to the side that can muster the utmost concentration of energies to the war purpose. In a democracy the conscience of a people must supply the spark, the energy, the motive power for war that are supplied in Germany, in part at least, by the gestapo. To the extent that we dedicate ourselves without reservation to the task at hand, we will hasten the victory and peace. To the extent that we fail to contribute our utmost of resources and energies, we will give solace to the enemy, betray our armed forces, and dishonor our democratic heritage.

The Rubber Crisis*

By A. C. Lutz[1]

In January, 1942, after bombs had fallen on Pearl Harbor, our nation's plans for large-scale synthetic rubber production were largely on paper. True, some synthetic rubber was being produced by privately financed plants. The B. F. Goodrich Company privately financed unit at Akron was then producing more butadiene-type of rubber than all other butadiene-type synthetic rubber processing plants combined. But this production was only a "drop in the bucket" compared to our requirements.

Today, 18 months later, plants are in production having a capacity of 252,000 long tons per year, and by the end of this year all of the synthetic plants now planned should be in operation, having a total capacity of 850,000 tons. This is an industrial achievement without parallel. It was accomplished by the wholehearted patriotic cooperation of all of the rubber companies and individuals, working with the govern-

* Presented at the meeting of the American Pulp and Paper Mill Superintendents Association, Hotel Commodore, New York, N. Y., June 15-17, 1943.

[1] Industrial Products Sales Division, The B. F. Goodrich Co., Akron, Ohio.

ment, who had had manufacturing experience with various types of synthetic rubber. They pooled all of their available knowledge, rolled up their sleeves, and went to work.

Last February, Wm. Jeffers, rubber director, estimated that by the end of 1943, we would have a stock pile of only 104,000 tons of rubber of all kinds. Sometimes 100,000 tons is considered the minimum below which stocks cannot fall if production is to continue without interruption. Fortunately, through conservation, increased imports of natural rubber and a greater production of synthetic rubber than was anticipated, by the end of this year, instead of only 104,000 tons, it is now estimated by Jeffers that we should have on hand 142,000 tons, a more comfortable margin. December will probably mark the low point, and by March, production will exceed present rate of consumption. Only then, will we begin to emerge from the crisis in rubber.

But the tires on essential passenger cars are wearing out. A recent sample survey of 55,000 cars driven by war workers showed that 50% of the tires would be worn out by the end of this year. The Public Roads Administration and the War Department's Highway Advisory Committee which conducted this survey foresee a crisis in transportation by the end of 1943 and urge continuation and strengthening of conservation measures.

In order to keep the country moving, 30,000,000 new tires will be needed during 1944. To reach this goal, 5,000,000 will have to be produced this year, which together with the 7,000,000 prewar tires on hand December 30, 1942, will be issued only to essential drivers. But it will be no easy matter to produce these tires even if we do have the rubber. The manufacture of passenger car tires has been all but eliminated during the past two years . The industry will have to train new personnel as well as put the tire making machinery back into condition for production. Unless this is done this year, industry will be in no condition to take on 50 to 60% of its prewar volume in addition to its vast production of other rubber products now being made for the war effort.

In order to intelligently appraise rubber's economic position for the present and future, let us take a brief look into its past.

The rubber industry from its very beginning, has been characterized by economic uncertainties, more especially, the wide swings in the price of crude rubber. The immense demand of the automobile which began at the turn of the present century carried the price to a high of $3.06 a pound, or over $6000.00 a ton in 1910. The Far East began producing on a large scale and while there was extreme fluctuation, a major downward trend had carried the price to a low of 11½c a pound in 1921. In an endeavor to stabilize the price, the British-Stevenson plan was put into effect, but despite this, by 1925 the price had risen to $1.20 a pound. In 1928 the Stevenson plan was abandoned and by 1932, prices had tumbled, scraping bottom at 2⅝c in New York.

One would think that the law of supply and demand would prevent to some degree this wide fluctuation, but the operation of this basic law never seemed to be a primary factor in the world price of crude rubber.

Rubber is a strategic material and vital to our war effort. Without an adequate supply, our war effort and domestic economy would collapse. We must have rubber to win the war and win we will. But after victory is finally won, what will become of the $650,000,000 investment? Perhaps we are looking too far into the future for now all of our energies should be devoted to task immediately before us, that of winning the war. All other objectives are meaningless until victory is won.

You have probably heard and will continue to hear many divergent opinions on the future of synthetic rubber, so I would like to give you some of the views of the president of our company, John L. Collyer, who has devoted a great deal of time and thought to this subject.

It is his belief that the destruction of the eastern plantations is not a foregone conclusion, when the Japanese are finally forced to withdraw. These plantations no longer constitute a military weapon, now that the United Nations have an adequate alternate source of rubber. Therefore, the act of destroying the plantations will not have the effect now as it once would have had of seriously crippling the United Nations ability to fight and win the war, but we all know the Japanese are unpredictable, and what will actually happen is anyone's guess, but it is Collyer's opinion that rubber will be grown in the Far East for years and years to come.

If so, the production of agricultural rubber from all sources in the world after the war will total about 1,700,000 tons a year. To this amount now add a postwar potential production, about 1,000,000 tons a year of synthetic rubber. This means that the total postpwar potential supply of rubber and synthetic rubber would aggregate about 2,700,000 tons, more than twice as much as the world has ever used before. The average yearly world absorption for the three big years, 1939, 1940 and 1941 was approximately 1,100,000 tons. As business men you can understandingly see the problem thus created.

In 1938, the per capita consumption of rubber in Russia was approximately one third of a pound a year. In China in 1937, the last year for which figures were available, it was only 3/100 of a pound. In comparison the prewar per capita consumption in this country was 10 pounds. You can see what closing these gaps even slightly would mean. That is really a long-term prospect and will not influence the critical supply and demand picture which we see taking shape for the immediate post emergency years.

Recently the papers reported the office of Jeffers as mentioning a likelihood of synthetic rubber at 16c a pound, but it will take a lower cost than this to eliminate crude rubber on economic grounds. It is reasonable to expect the same striking cost reduction to follow the improvement in the production of synthetic rubber as we have seen take place in numerous other commodities and products.

It is Collyer's conviction that the nation's synthetic rubber facilities should be kept intact and in operation on "at least a limited basis of 150,000 to 200,000 tons or more production a year." For only by continued research and actual volume production, will the cost of making synthetic rubber approach more nearly the cost of natural rubber.

A certain amount of special purpose synthetic rubber already commercialized by private capital will continue to find a market, because of the superior qualities for scores of specialized uses, gasoline hose for instance. If those responsible for the nation's defense will continue to specify synthetic rubber's use in national defense equipment in sufficient amounts, this continued operation can be assured.

The Importance of a Recovery Unit as Steam Generating Equipment in the Pulp Mill*

By F. H. Rosencrants[1]

Abstract

This paper supplements the paper presented before the Technical Association of the Pulp and Paper Industry in Feb. 1941 (Technical Association Papers 24:349-355) entitled "Modern Recovery Unit for the Sulphate Process.

The advances in the operation of the plants of the Champion Paper and Fibre Company, Chesapeake Corporation, and several other companies are discussed.

This paper may be considered supplemental to a paper under the subject "Modern Recovery Unit for the Sulphate Process" presented at the Annual Meeting of the Technical Association of Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., February 17-20, 1941.

This paper was written following 3 years' operating experience of an original development unit at the Canton plant of Champion Paper and Fibre Company and a year's operation of the 250-ton capacity unit at the West Point, Virginia plant of the Chesapeake Corporation.

The Chesapeake unit was substantially identical to the Canton unit except that water cooling of the furnace was extended to make it a 100% job. A third drum located at the top of the unit was added as a means of eliminating horizontal runs of tubing on which chemical could lodge and build up and the return bends of the superheater were carried above the roof baffle for the same reaeson; a steam air heater was substituted for the gas air heater; the baffles were made almost entirely of metal instead of tile; and greater accessibility and facilities for keeping the heating surfaces free of slag accumulations were incorporated. These were the major changes. Minor refinements were also incorporated. Since the Chesapeake unit was completed a substantial number of additional units have been constructed and placed in operation. A further group of units were caught in mid air "so to speak" by the requirements of the war production program and will be completed as soon as circumstances permit.

All units subsequent to the Chesapeake unit have been identical in design with it except as affected by such factors as capacity, steam pressure, and steam temperature. There may have been some small improvements in detail the desirability of which was dictated by experience but such have been the only changes. The description of plant as incorporated in the above mentioned paper is, therefore, still up to date.

The operating record of the Chesapeake unit (Fig. 1) is of particular interest for the following reason:

1. It is the first fully developed unit of its type, hence the record covers a greater duration of time than applies to any other unit of the same design.
2. Mill operation is continuous through week ends and also holidays, other than the 4th of July and Christmas.
3. The liquor handling capacity required by the mill being in excess of the capacity of this unit, it is always run at its full capacity.
4. The state of cleanliness and the state of well-being which pervades the general vicinity of the recovery room creates a feeling of confidence that the unit is being well operated and maintained, hence any operating and maintenance figures quoted as applying to this unit may be presumed to represent normal results with good operation.

Two important considerations in connection with a source of steam supply are "Quantity" and "Reliability". The degree of importance of the "Reliability" factor increases rapidly as the ratio of the "Quantity" to the total requirements of the mill increases.

In the original (TAPPI) paper charts showing the momentary variation in steam supply over a period of 24 hours and the record of production per 24 hours over a period of nearly a year were presented. It is now possible to extend the record of production per 24 hours to include a period of 3 years. In the meantime there is no change in the characteristics of the 24 hour chart as presented with the original paper. The lesser degree of regularity during the latter months of 1942 reflects changes in operating personnel occasioned by various phases of the war program. Early in 1943 the situation was corrected by adding one man to the operating crew bringing the total number up to six as compared with five men required per shift for the first three years. The unit has been on the line 96.5% of the total elapsed hours from the initial fire up to Dec. 31, 1942. The average steam output has been at a rate 29% inexcess of the rate anticipated at the time of installation.

Recent 24-hour charts (Figs. 2-5) from several of the other mills are herewith presented as follows:

Champion Paper and Fibre Company
Gaylord Container Company
National Container Company
Nekoosa-Edwards Paper Co.

The steam production rate shown by these charts form an interesting contrast when compared with practice up to only a very few years ago. Attention is also directed to the record of total steam temperature. The small range of variation is of interest.

Chemical Recovery

Steam production is of secondary economic importance in the operation of a recovery unit. Chemical recovery is the primary objective. On a dollars and cents basis the chemical recovered is worth several times the value of the steam produced. However, the value of the steam is substantial and having established a given rate of supply which is, in most cases, a substantial part of the total requirements, it is highly important that this supply be dependable, uniform and not susceptible to interruption or to wide variations in flow.

The three conditions which are essential to insuring the reliability of steam supply from the recovery unit are:

*Presented at the meeting of the American Pulp and Paper Mill Superintendents Association, Hotel Commodore, New York, N. Y., June 15-17, 1943.

[1]Vice President, Combustion Engineering Co., Inc., New York, N. Y.

1. Restrict the variation in the concentration of solids in the liquor within as narrow a range as possible with a minimum value which the unit will easily handle.
2. The heating surfaces in the gas passages of the unit must be maintained in a reasonable state of cleanliness.
3. The outlet gas temperature should not be reduced to too low a temperature—probably not below 300°F, especially if an electrical precipitator is used.

To insure condition No. 1 requires that ample multiple-effect evaporating capacity should be installed and maintained and operated to give a uniform concentration of liquor. Having made ample provisions in this respect then the heat absorbing surface of the recovery unit should be proportioned to give a gas temperature to the inlet of the cascade evaporator at least 100°F. in excess of normal requirements. The flexibility given by this margin of temperature is essential to take care of abnormal operating conditions of either the multi-effect evaporating unit or the recovery unit.

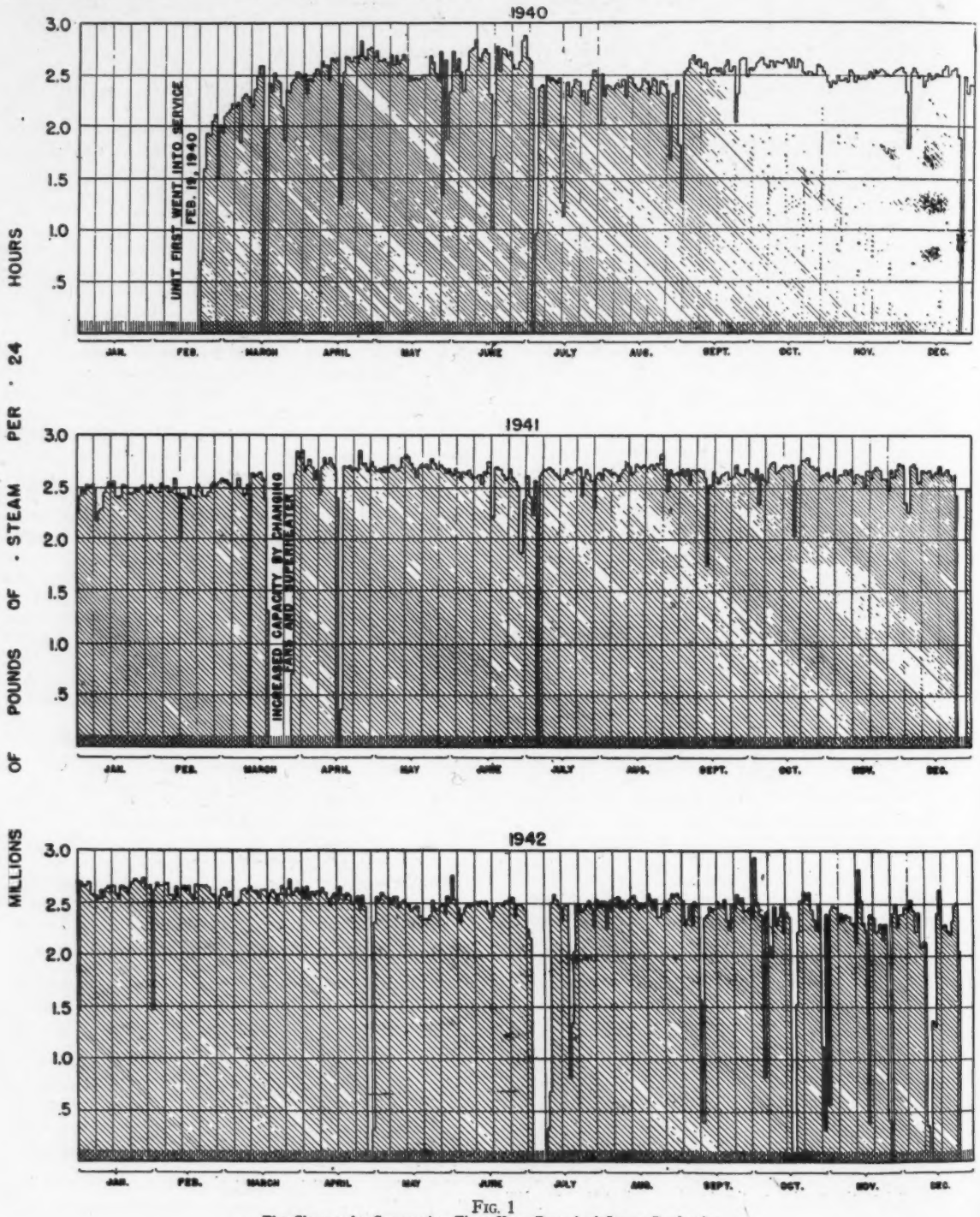


FIG. 1
The Chesapeake Corporation Three-Year Record of Steam Production

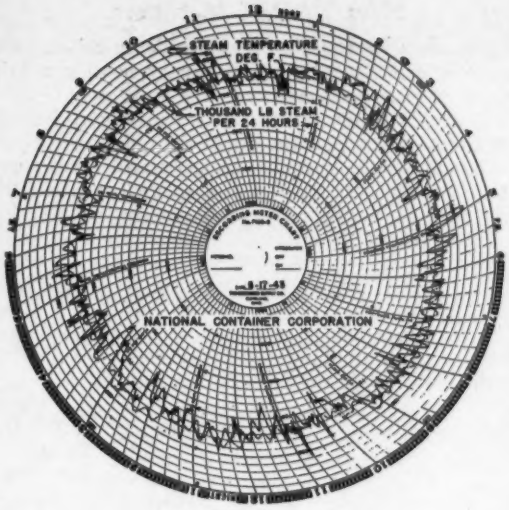


FIG. 2

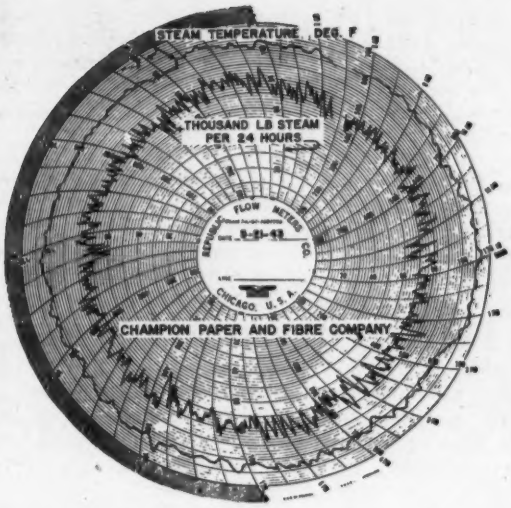


FIG. 4

A large part of recovery unit operating troubles arise from inability to handle the water supplied to it with the liquor either on account of an abnormal amount of water or due to an abnormally low gas temperature to the cascade evaporator. Hence a margin of multi-effect evaporating capacity overlapped by a margin of gas temperature to the cascade evaporator is desirable—even at some sacrifice in the quantity of steam generated.

Plugging of the gas passages is the greatest cause of erratic variation of steam flow and to interruption to service.

Cleanliness of the heat absorbing surfaces is a matter of both design and of operation. It is not possible to design a unit which will not get fouled up with an accumulation of chemical. It is however possible to so design the unit that it may be kept clean and continually operative with a close approach to uniform steam output over indefinite periods of time. Some of the principal requirements are:

1. Vertical tubes spaced on wide centers. This is essential in the high temperature zones as applying to both the boiler and the superheater. It is desirable even in the rear passes.

2. A free fall of material dislodged from heating surfaces in the high temperature zones direct into the furnace. The further this principle can be carried into the low temperature passes the better.

3. If allowed to accumulate, infiltration of moist air results in the deposited material settling up into a hard mass which becomes nonremovable without shutting down.

4. Provision of the closest possible approach to perfect accessibility for hand lancing every square foot of heat absorbing surface in the high temperature zone. Plenty of generously designed lancing floors and a profusion of ports designed to be easily opened with the end of the hand lance and so that they close tightly when the lance is withdrawn, are essential. Compressed air is recommended for lancing in preference to steam.

5. Adequate steam blowers for the surface in the passes operating at a temperature below 1000 to 1200° F.

6. Metallic baffles in preference to tile so designed and secured in place that they can not be damaged by the lancing operations are highly desirable.

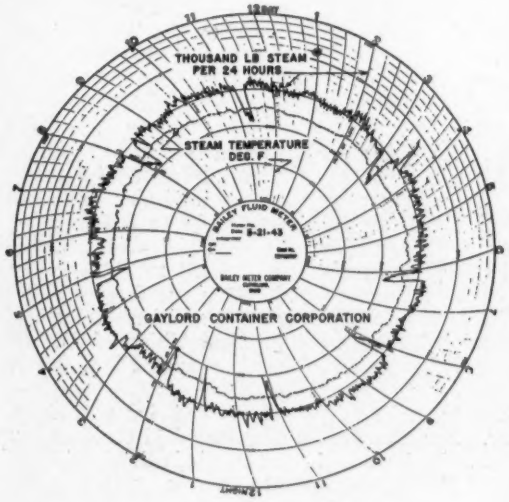


FIG. 3

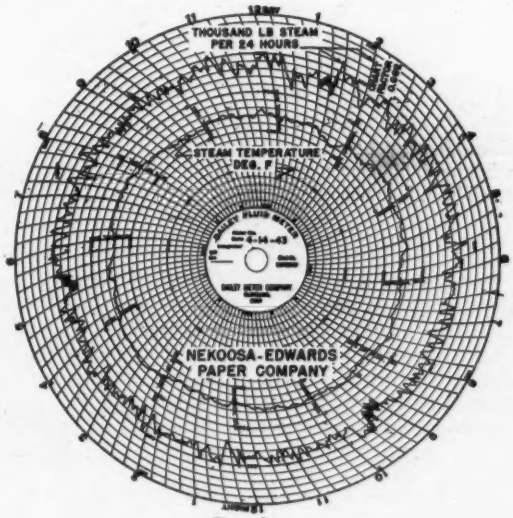


FIG. 5

7. Avoidance of the use of air preheater in the gas stream. The close spacing of tubes is bad. If the tubes are horizontal they are worse. The situation is aggravated by moisture precipitation. When starting up and shutting down the unit and during some abnormal operating conditions the gas temperature in contact with the surface gets below the dew point—moisture precipitates and reacts with the deposited chemical to form an adhering solid which very nearly defies removal. This condition is aggravated in cold climates. A liberal application of soot blowers generously operated may afford a measure of relief but an air heater will always be a potential source of trouble from a cleaning point of view.

8. To a lesser extent than air heaters, economizers should also be avoided. Economizer design is normally associated with closely spaced horizontal tubes, a bad condition from a cleaning point of view. A vertical tube economizer arranged integrally with the boiler would be a preferable arrangement. So long as the incoming water to the economizer is kept at a temperature well above 200° F., little trouble from moisture precipitation will be encountered; but this is not always possible.

9. To the utmost possible degree avoid all projections, ledges or any feature contributing to the deposit and adherence of solid matter on the heating surface, baffles, or walls.

Having gone the limit in the design to reduce the rate of deposit and to provide facilities for cleaning, ultimate success then depends on a routine of continuous and persistent cleaning. The trick is in not letting the unit get dirty. In its early stages of accumulation the deposits are easily removed. After a certain point of progress in the process of accumulation the surface of the deposited material fuses and solidifies. Bridging from tube to tube takes place and masses of fused slag become anchored. The job of removing then becomes a real task. The critical points of chemical deposit are soon established and within a limited time it becomes possible to establish a routine of lancing and soot blowing to keep the unit clean, i.e., from getting dirty.

Maintenance of the Chesapeake unit has been restricted to a single major item—renewal of refractory in the furnace floor. This has required attention about every nine months. To effect the necessary repair requires a time out of about 30 hr. from shutdown to starting up and for the most part has been carried out at scheduled holiday shutdowns. The cost per 1000 pounds of steam produced reduces to approximately 0.38 cents (about 3.8 cents per ton of pulp). The sum total of minor items of maintenance has been negligible. It may be safely stated that total maintenance is below 0.50 cents per 1000 pounds of steam (less than than 5 cents per ton pulp).

Carnauba Wax Substitute

A domestic wax has been developed by the American Specialty Company of 125 Church Street, New York City as a total replacement for Carnauba Wax. Known as Asco Wax No. 55, it has been in use for the past 18 months among Eastern coated and glazed paper manufacturers.

It is a vegetable product, extra refined, and can be emulsified in the same manner as the imported product.

The developers of this wax announce that it needs no priorities and offer a trial bag on approval.

New TAPPI Members

The executive committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

A. B. Brackett, carton division manager, Frosted Foods Sales Corporation, New York, N. Y.

Millard Brandt, chemist, Experimental Laboratory, Atlas Powder Company, Tamaqua, Penn., a 1918 graduate of Colgate University.

James H. Compton Jr., field development engineer (Starch) Special Commodities Division, General Mills Inc., Minneapolis, Minn., a 1934 graduate of University of Kansas.

Emile Frederick Jr., director of Technical department, the Celotex Corporation, Marrero, La., a 1924 graduate of Louisiana State University.

W. N. Hall, development Manager, Alkali Division, Canadian Industries Ltd., Montreal, Que., Canada, a 1929 graduate of University of British Columbia.

D. A. Huber, technical director, Crossett Paper Mills, Crossett, Ark., a 1930 graduate of University of Arkansas.

C. L. Jones Jr., synthetic resin service engineer, Plastics Division, Monsanto Chemical Company, Springfield, Mass., a 1936 graduate of Yale University.

R. L. Kerridge, development engineer, Riegel Paper Corporation, New York, N. Y., a 1932 graduate of Dickinson College.

Hugo Klein, technical director (in charge of production and research) Charles Bruning Company Inc., New York, N. Y., a 1926 graduate of Columbia, received his B.S. degree in 1927 and Ch.E. degree in 1928 .

J. E. A. Warner, chief engineer, Robert Gair Company Inc., New York, N. Y., a 1912 graduate of McGill University.

OPA Raises Casein Prices

WASHINGTON, D. C., June 16, 1943—Producers' ceiling prices for industrial casein were raised 3 cents per pound by the Office of Price Administration today to encourage the sale of skim milk off farms for use in producing the casein, which is needed in the war program.

The action will have no effect on the cost of food to the consumer.

The increase was made on the basis of studies by OPA and information from the War Production Board, Department of Agriculture, and other Government agencies. This indicated that the former ceilings for industrial casein were too low in relation to those for other products that are made from skim milk.

The ceiling prices for wet and dry curd casein established today range from 18 to 22½ cents per pound. The ceilings for industrial processed casein of different types range from 24 to 25½ cents per pound. Prices are f.o.b. the place from which the seller ships to the buyer. Provision is made for quantity discounts and for the addition of the lowest freight charges when the price quoted is a delivered one.

Other differentials are allowed for special services. For example, an addition of ½ cent per pound is permitted when the seller grinds the casein at the buyer's request and to his specifications and requirements.

Salvage of Materials at KVP*

By Ralph S. Clark[1]

Abstract

The plant salvage operations and the personnel set-up of the Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich., are described.

The Mechanical Department, headed by C. R. Gibbs as chief engineer and master mechanic, is a complete department charged with mill maintenance, construction—both buildings and machinery—design of various special machines required to meet needs of product changes, etc.

Mr. Gibbs enjoys the status of superintendent with equal rank to operating superintendents and reports directly to the president who, of course, determines policies pertaining to equipment and its use.

The KVP Company is and has been consistently progressive in its products and this is reflected in the operation of the Maintenance Department.

The normal complement of men is about 175 including all crafts from machinist to bricklayer necessary for upkeep of buildings, machinery, and construction.

Within this department, and with the help of the management, some years ago a salvage department was created, starting in a modest way, an organized method of collecting and disposing of obsolete machinery and scrap parts. As the department grew its operations widened, some simple equipment was purchased and made, building space was increased, and finally a fine store yard was furnished.

Into this yard is collected all classes of materials which can stand weather. This yard is located north of our central machine shop and the salvage building on the east. This yard is well fenced, has concrete pavements, and bound-gravel storage spaces.

Here are stored structural steel, salvage shafting, steel tanks, sheet metal, pipe and pipe fittings, rolls of various kinds, cast iron machine bases, pulleys, gears, bearings, etc. With the exception of a cleaning-up area north of the shop all material in the yard has been cleaned and inspected and painted for preservation and is ready for reuse. Material which is broken or obsolete is sorted out and promptly scrapped and sold.

There is a regular salvage crew consisting of 3 to 5 men with a foreman who are under the supervision of the central stores foreman. This ties all this used equipment into the stockroom system, thus all parts reused pass through this stockroom control.

The assembling of all removed equipment, large and small, is handled by the salvage crew.

We wish to discuss here a purely wartime salvage development which in ordinary times would not be economical, but at this time we consider it well worthwhile and this idea may be very much to your advantage.

Any mill accumulates a number of pieces of pipe which have been cut down into very, very short lengths. Odds and ends of short pieces which accumulate and are ordinarily scrapped, we take these pieces, cut off the threads, place them in a lathe and cut a 45° angle taper on each end to accommodate welding. We have rigged up in the welding shop a piece of 3 by 3 inch angle iron, placed on the welders table into the V of which each piece of pipe is laid end to end. These pieces are then welded together and running them out into approximately full 20-foot lengths. These rebuilt lengths come out reasonably straight and really the length of pipe look quite well. These lengths are now ready for recutting, threading, and installation.

Records

The bookkeeping is simple. We'll say, for example, that the plant buys some equipment which is installed, the department receiving this equipment is charged with it, of course. To keep this simple we'll suppose all this material is new, which is probably not the case.

Suppose now in five years this machine goes obsolete and is removed and goes through the salvage department, the department where it was installed does not get credit for any value. The salvage department then tears this machine apart, saving those parts which we can use on other machines. When these parts are again installed the department into which they go is not charged with them, but the company as a whole does receive the benefit.

Bolts, pipe and fittings, valves, bearings, pulleys, sheaves, shafting, and so on are continually rotated through reconditioning.

All sales of scrap material are credited to the salvage department. If bookkeeping were attempted and this material priced and accurately inventoried it would be an endless and thankless job.

Please note I have spoken of rotating of equipment. I wish to emphasize this point very strongly, because another company policy now enters the picture, necessary to make this salvage department work.

We found it highly desirable to standardize the purchase of a large number of items to obtain interchange of parts, which is the heart of equipment overhaul and reuse.

Bearings were gone over, for example; we find we had a collection of various makes, one of which predominated the field was satisfactory from our viewpoint, so it was standardized for future purchases. These bearings of the collar-oiling variety in 1 15/16, 2 15/16, 3 15/16, and 4 15/16-inch sizes. They arranged to stock these bearings for us, they rebabbit these bearings for us, and they have standardized their base to center line of shaft dimensions. Thus, if a bearing must be renewed, the millwright installs a new or reconditioned bearing. Don't forget the time saving here.

Certain types of valves are also standardized for the same purpose. When this rotation idea was decided on we found we had a pronounced predominance of valves of a certain manufacturer, so we decided to stop the purchase of other makes.

Drives are another example where we found a predominance of one manufacturer's equipment. We

*Presented at the meeting of the American Pulp and Paper Mill Superintendents' Association, Hotel Commodore, New York, N. Y., June 15-17, 1943.

[1]Engineering Dept., Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.

standardized on sheave construction, eliminating all brushing using a heavier rim than some, in large sizes, split hubs, and full-split sheaves and standard grove angles. We carry a sizeable stock of V-belts. This meant as few belt lengths as possible, so all drives are laid out to accommodate belts in stock. Unless some excellent reason is found a draftsman must not depart from standards.

We can carry you on through discussion after discussion of this same thing for longer than you want to listen, going over motors, controllers, chain drives, chain falls, I-beam trolleys, certain rangé pumps, classes and sizes, and a number of other items.

In designing new equipment our engineering force must, without question, use up all salvageable equipment available which is suitable before ordering new from the purchasing department.

All millwrights and construction men must comb the salvage material before taking a new part.

Our stockroom must issue, for example, salvage cap screws, bolts, and nuts before issuing new.

This idea passes through the whole maintenance department and it works.

FIG. 1

Reconditioned material is kept neatly on shelves or in the yard where it can be easily found—no hunting through scrap piles.

The purchasing department works with us on salvage and the whole standardization-and-rotation-of equipment idea, and they deserve considerable credit. It does of course clip their wings to some extent on competitive buying.

Helpful Rules

1. Systematic collection, sorting, cleaning and repair of all equipment taken out of service.
2. Quick decision on whether to save a complete machine or salvage it. Salvaging means, the breaking up into its component units, scrapping and selling useless parts, and reconditioning usable parts.
3. Through expeditious selection and purchasing—limit yourself to a few or one maker of individual units for the sake of reconditioning, repair, and reuse in many places or many machines.
4. The reconditioned parts must be clean, protection painted, kept where they can be seen easily and gotten at, to expect a mechanic to hunt them up.

   Don't forget here the millwright called in at 3 A.M. to replace a bearing. He does not enjoy pawing over a scrap pile and then having to rebabbitt the old bearing.
5. The close tieup of the system to the central stock room.
6. Very simple bookkeeping.

This system works and is profitable. It is particularly valuable to help the war effort.

Foundation Practice

Figure 1 shows a pump and motor foundation as a good example of the practice for the mounting of such equipment. It is somewhat remote from the direct salvage operation, but it does, however, incorporate important features relating to the rotation of material and equipment, which is an important factor in our salvage operation.

Figure 1 shows two types of concrete foundationing. The first, on the motor, showing what we call "lookouts" poured in with the concrete, which include a 1½ inch pipe sleeve from the top of the lookout to the top of the foundation. Please note a cast iron sole plate, immediately on top of the concrete, which is bolted down by stud bolts through the pipe sleeve and leaving a nut in the "lookout." The nut in the sole plate itself recesses into a counterbore in the sole plate, so the top of the sole plate is flush. There are two of these sole plates supporting the motor, which are lined and leveled, then leaded down to the concrete. We use this lookout foundationing practice in motors above 15 hp., the T slot below 15 hp.

In the case of the pump foundation you will notice a slot near the front of the photograph which is what we call a T slot. This is a cast iron slotted strip which goes across the concrete foundation and is poured with it. These slots accommodate the head of a ¾ bolt. The pump is again supported on a cast iron sole plate, the hold-down bolts and nuts of which are again countersunk so the top of the sole plate is flat. Again this sole plate is leaded down. Note that in the case of both foundations neither the lookout holes nor the T-slot holes are in line with the ears on the motor base or the pump base. This is done so that through a forced shut-down another size motor can be quickly attached to the sole plates, or the same could occur with the pump whose dimensions were not identical with those already installed.

Now, you may ask, justify the cast iron sole plate using lead for anchorage.

First with a concrete imbedded machine. The finish pour shrinks away from the machine, making a bad foundation. The machine being apt to work loose. The machine is also very hard to remove.

Second a concrete base about 2 feet high will shrink down nearly ½ inch when curing.

Our foundations are top finished with a diamond pattern roller with 1/16 inch of level and grade.

Third The cast iron plate is cast with a diamond back, for the single purpose of developing shear, ¼ inch space is allowed for lead. The lead formula is 95% lead, 5% antimony. Calculated shear shows a strength of 260,000 pound-inches of torque obtainable per square inch of area.

Lead has a high compression value, it is quickly installed, and machinery can be mounted at once.

This type of sole plate foundationing practice is widely spread throughout our mills from paper machines down through converting apparatus and printing presses, etc. On most machines, of course, these sole plates are laid in so that the top is flush with the finished concrete floor. Such sole plates are carried in stock in standard lengths and are cut to suit the foundationing conditions.

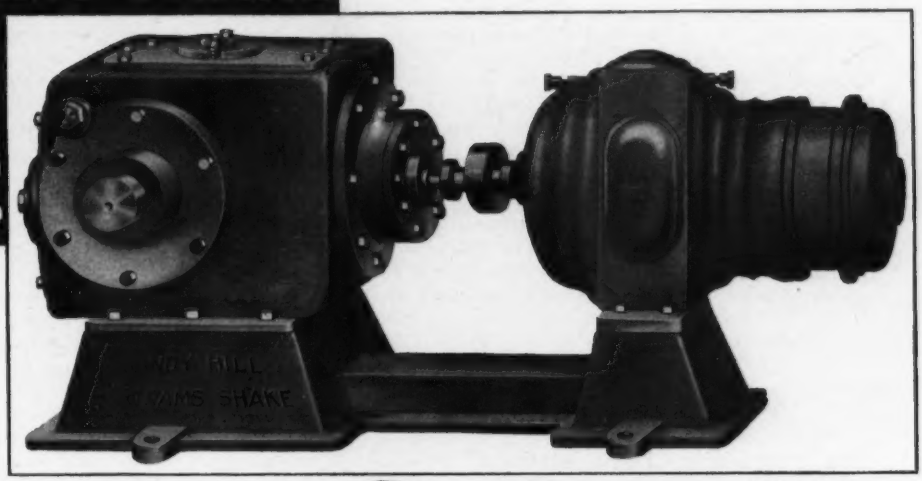
We carry in the salvage department some collection of pumps and motors to take care of emergencies and through our plan of salvage and rotation of equipment it is perfectly conceivable that neither of these two pieces of equipment may be on these bases within the next few years.

We would also like to mention the steel guard fence that you note in the foreground of Fig. 1 on which we standardized some years ago and is made up of 1½ inch angle iron with the gusset connection fitting and the posts. We buy these in quantities, having them ready for any place needed.

The rails themselves are bought in running lengths and are cut to suit. Again should we have a change in mind and this apparatus become obsolete everything shown in this picture except the concrete itself is subject to knockdown and salvage, reconditioning, and reuse.

THE *New* SANDY HILL BERTRAMS SHAKE

Planned for POST-WAR Performance



ONLY the NEW Bertrams Shake, manufactured exclusively by Sandy Hill, gives ALL these superior advantages:

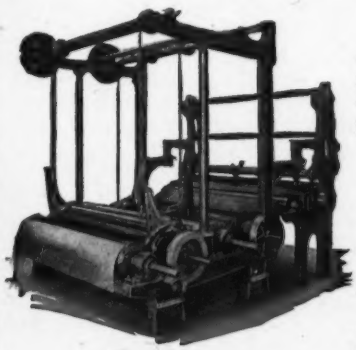
★ ANTI-FRICTION BEARINGS ★ ENCLOSED BALANCE WHEEL
★ OIL IMMERSED WORKING PARTS ★ COMPACT DESIGN
★ ADJUSTABILITY OF STROKE WHILE IN MOTION
★ PERFECTLY HORIZONTAL MOTION ★ ACCURATE CONTROL

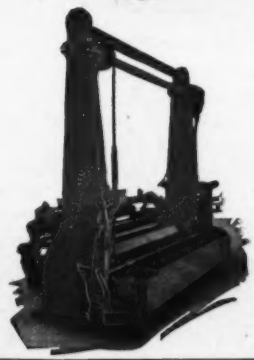
Let Sandy Hill help you plan for the future

Sandy Hill
IRON & BRASS WORKS
PULP & PAPER MAKING MACHINERY SPECIALISTS
HUDSON FALLS, N. Y.

"M & W" HIGH SPEED DRUM WINDERS AND SLITTERS

FOR ALL PURPOSES





Either FOUR DRUM or TWO DRUM type. Paper wound with uniform hardness regardless of grade or weight.

Perfect Shipping Rolls.

Special attachment eliminates welts.

Ideal for end of Paper Machine.

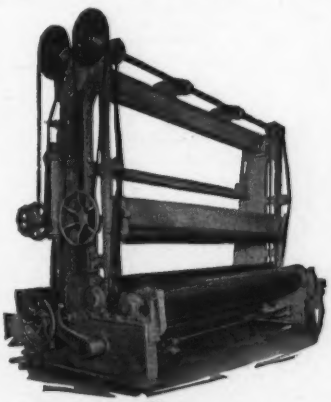
Also for rewinding or use in connection with Super Calender.

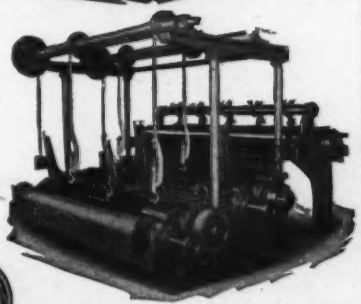
Shear Cut Slitters give perfect edges without dust.

Positive separation of rolls.

No interweaving.

Patented
"QUICK THROW-OUT"
Intermediate Top Slitter Units
Save Time.





The MOORE & WHITE Co.
PHILADELPHIA, PA.
N. PHILA. STA. PENNA. R.R.
PAPER MILL MACHINERY

Issues Pulpwood Ceilings

Specific dollars-and-cents ceilings have been issued by the Office of Price Administration for pulpwood produced in Tennessee, Alabama and that part of Louisiana east of the Mississippi river.

Producers in this section are given the same ceilings as producers in South Carolina, Georgia and Florida, who were provided with spelled-out maximum prices for the first time on May 5, 1943, in Maximum Price Regulation No. 387 (Pulpwood Produced in the States of South Carolina, Georgia and Florida).

All these six southeastern states and Louisiana east of the Mississippi river will be covered by a Revised Maximum Price Regulation No. 387 (Pulpwood Produced in the States of South Carolina, Georgia, Florida, Tennessee, Mississippi, Alabama and Louisiana East of the Mississippi river), effective June 17, 1943.

Since March 5, 1943, pulpwood produced in Tennessee, Mississippi, Alabama and Louisiana, east of the Mississippi river, has been under a ceiling "freeze" at each seller's highest prices during the five-day period, February 27 to March 4, 1943, inclusive. In general, the spelled-out ceilings perpetuate the "freeze" levels. Industry was consulted by OPA in connection with preparation of these maximum prices.

Ceilings established in the revised regulation for pulpwood cut from the stump—per cord, delivered at the seller's expense, follow:

F.O.B. freight cars: Pine, $6.80; southern hardwood (rough), $7.30; southern hardwood (peeled), $10.00; F.O.B. barges: Pine, $7.80.

These are the same ceilings established May 5, 1943, for pulpwood produced in South Carolina, Georgia and Florida with the exception that pine pulpwood sold f.o.b. barges is allowed a maximum price $1 per cord higher than pine pulpwood sold f.o.b. cars. Previously for these three states the pine ceiling was $6.80 whether sold f.o.b. car or f.o.b barge.

Bevis Machine Gets Maritime "M"

The Maritime "M" award will be presented July 9 to The Bevis Machine Company, Middletown, Ohio, for outstanding achievement in production of propulsion shafts for Liberty ships and other heavy marine equipment.

Allen D. McLean, assistant director of production for the United States Maritime Commission, will present the "M" pennant and Victory Fleet flag to Stanley G. Bevis, company president. Lieutenant Governor Paul M. Herbert will represent the State of Ohio at the ceremonies. Employees will receive the Maritime "M" merit insignia.

The company, which manufactures paper mill equipment in time of peace, converted its plant to marine equipment production more than two years ago, and achieved its award-winning record without plant expansion or purchase of new machines.

Carl Anderson Goes With Menasha

Carl Anderson, who formerly represented a paper specialty manufacturer in the New England area, has been appointed to represent the Menasha Products Company in an eastern territory which includes upper New York state and part of eastern Pennsylvania. Albany is to be Mr. Anderson's headquarters.

Bob Ziegler Resigns

A. H. Chamberlain, executive secretary, National Paper Trade Association of the United States, states:

"We regret to confirm the announcement made at last week's Mid-West Regional Meeting that Bob Ziegler, now personally known and highly regarded by our entire membership, has resigned from our staff. On July 1 he will become associated with Ed Magel, one of our most loyal and active members, in the Crescent Paper Company, Indianapolis.

"Coming with us in 1939 from a manufacturer's selling organization, Bob has made a splendid record of development and accomplishment. He has won the confidence and personal friendship of the entire membership by whom he will be greatly missed. He has also gained recognition and influence with the manufacturers generally, and the respect and confidence of the numerous Governmental agencies and officials with whom he has been in frequent contact since emergency conditions came upon us.

Much as we regret his leaving the staff, none of his friends in the trade can do other than congratulate him on the splendid opportunity he has accepted, and we are sure the best wishes of the Association membership for his success and happiness will be extended to him. Since he will be connected with an outstanding Association house, we are glad to realize that he will still be a participant in Association work and will undoubtedly contribute much to our future activities.

"While Bob's place cannot be easily or hastily filled, you can depend on your office to explore the field thoroughly to find a worthy successor without undue delay."

Masonite Nets 38 Cents

The Masonite Corporation for the quarter to May 31, reports subject to final audit, net profit, after $1,076,449 provision for State and Federal income and excess profits taxes, and $107,000 proviison for contingency reserve, was $244,320, equal to 38 cents each on 539,210 shares of common stock after preferred dividend requirements. Nine months to May 31: Net profit, after $3,112,149 provision for State and Federal income and excess profits taxes and $300,000 contingency reserves, was $847,750, equal to $1.35 a common share. Sales for the three months totaled $4,822,303 and for the nine months, $13,926,-242. No adjustment was made in the current year for excess income tax provisions set up for the fiscal year ended Aug. 31, 1942. No comparable figures are available.

Establishes Library on Welding

A new library on welding, believed the most extensive in existence and one which will be of inestimable value in welding development, particularly in the industrial field, has been established at the Ohio State University, according to E. N. Manchester, university librarian.

Known as the "A. F. Davis Welding Library," it is the gift of A. F. Davis, vice president and secretary the Lincoln Electric Company, Cleveland, Ohio. Mr. Davis received the degree of M. E. in Electrical Engineering from the university in 1914 and his reason for placing the library there was the fact that Ohio State has the only four-year course in Welding Engineering.

THE FORTRESS

that means a better caustic plant tomorrow

IMPROVED technology built on our experience in the rapidly expanding aluminum and magnesium industries, is the link between today's potent Flying Fortress and the recausticizing plant of tomorrow. From it will result a better engineered plant—employing new—and more economical methods of recausticizing.

Not long ago, when the industrial mobilization of this nation for war was in its infancy, a tremendous need for the light metals developed over night. The response of the aluminum and magnesium industries was immediate—and we were able to contribute to their rapid development with equipment—and with ideas. In doing our share we gained a greater knowledge of new methods—improved technology that will enable us to help you—tomorrow.

Meanwhile, it's our job to keep Dorr Continuous Recausticizing Systems running smoothly, at peak production. If you need help, call on us.

DORR

research · engineering · equipment

DORRCO

THE DORR COMPANY, INC., ENGINEERS

NEW YORK, N. Y. . . 570 Lexington Ave. — CHICAGO, ILL. . . . . 221 No. LaSalle St.
ATLANTA, GA. . . . . Candler Building — DENVER, COLO. . . . . Cooper Building
TORONTO, ONT. . . . 80 Richmond St. W. — LOS ANGELES, CAL. . . 811 West 7th St.
RESEARCH AND TESTING LABORATORIES . . . . . WESTPORT, CONN.

SUGAR PROCESSING

PETREE & DORR ENGINEERS, INC. . . 570 LEXINGTON AVE., NEW YORK

Mr. Sulfite Superintendent!

"Summer, with the temperature of cooling water mounting upward, is generally a forecast for the Sulfite Superintendent to look for trouble—trouble that slows up digester cooks or reduces the yields of pulp."

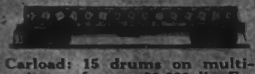
Cooking Acid plus "ESOTOO"

The fortification of acid with *ESOTOO is an important part of the answer for solving summer slumps and for speeding up the cook, particularly of wet wood. Here is a method of controlling free SO_2 percentages, flexible enough to adapt itself readily to the varying demands of production and to emergency application when breakdowns occur. *ESOTOO is immediately available; its use does not depend upon costly, hard-to-obtain or special equipment. Isn't it worth investigation?

*ESOTOO is Virginia's Trade Name for Liquid Sulfur Dioxide

About Shipments—

Portable cylinders containing 150 lb., semi-portable drums containing 2000 lb. liquid SO_2. L. C. L. or carload.



Carload: 15 drums on multi-unit car frame; 30,000 lb. For users without storage facilities.

Tank car lots of 40,000 lb. for users equipped with storage facilities.

Prompt shipment from the strategically located works of the largest producer of liquid sulfur dioxide in the U. S.

V VIRGINIA

VIRGINIA SMELTING COMPANY

WEST NORFOLK, VIRGINIA

New York Paper and Pulp Market Review

Advisory Committee Recommends Five Per Cent Cut in Newsprint to Publishers—Pulp Supplies Declining as Pulpwood Situation Grows More Serious—Waste Paper Market Active.—Other News.

Office of the PAPER TRADE JOURNAL.
Wednesday, June 23, 1943.

Demand for virtually all types of paper continues to be reported as strong in the wholesale market. Production has been stabilized at about 90% and opinion in many quarters indicates that a further cut of 5% in the consumption of newsprint by publishers is impending. Reports from some of many manufacturers' representatives, jobbers, and general paper merchants this week, reflect concern and expectation that a more severe curtailment of paper may be ordered by the government within a month or two.

The general index of business activity for the week ended June 12 rose to 140.8, from 137.1 for the previous week, compared with 131.4 for the corresponding week last year. The index of paper board production was 156.3, compared with 166.7 for the previous week, and with 130.7 for the corresponding week last year.

Paper production for the week ended June 12 was estimated at 88.3%, compared with 88.4% for 1942, with 99.0% for 1941, with 91.9% for 1940, and with 79.0% for the corresponding week for 1939.

Paper board production for the week ended June 12 was 97.0%, compared with 72.0% for 1942, with 88.0% for 1941, with 79.0% for 1940, and with 67.0% for the corresponding week for 1939.

A further cut in the consumption of newsprint by newspaper publishers is recommended by the Printing and Publishing Division of the WPB and that division has been requested to suggest a plan to allocate deliveries of Canadian and domestic newsprint to United States publishers and to formulate a new ruling on handling appeals for additional newsprint. In recommending a further cut in consumption, the newspaper advisory committee of the WPB stated that while the December program had been expected to effect a 10% reduction in newsprint consumption, the result accomplished amounted to only about 5%.

Pulpwood

The future supply of pulp is seriously threatened by the pulpwood supply. Consumption of pulpwood for the first four months of this year was about 11% under receipts of wood. Many uses for pulpwood, other than for paper products, contribute to the acute situation in this essential raw material. The increased use of pulpwood for the production of rayon, plastics, explosives, bomb and shell casings, hospital wadding, etc. are some of the many products involved. The campaign to enlist farmers in the twenty-seven pulpwood producing states will, it is hoped, contribute to the cutting of more pulpwood from farm woodlots and possibly the collection of cordwood now stacked on farms.

Wood Pulp

The supply situation in chemical wood pulp appears to be becoming increasingly serious. It began with the closing of pulp mills in the Puget Sound area some time ago. Pulp production has declined far more than the production of paper and mills have been using up inventories quite rapidly. In view of this unbalanced situation between raw material and products, some quarters expect a further curtailment of pulp to those mills whose products are not considered essential by the WPB for the war effort.

Rags

Mill buying of new cotton cuttings is active at this date. Volume is centered in the colored grades, such as fancy shirts, blue overalls, percales, etc. Ceiling prices prevail, with sales on white cuttings slightly below ceilings.

Old Rope and Bagging

Demand for No. 1 old Manila rope is in excess of limited supplies. No important change has been reported in the old rope market during the current week. All jute material, including cordage, twine and bagging, has been placed on List 2, General Imports Order M. 63, and licenses to import must be procured from the WPB.

Demand for scrap bagging is less active this week. Prices continue nominal.

Old Waste Paper

A shortage of labor is preventing much increase in supplies of paper stock and another salvage drive appears impending. Mill buying is active and quotations on all grades are very firm at full ceiling prices.

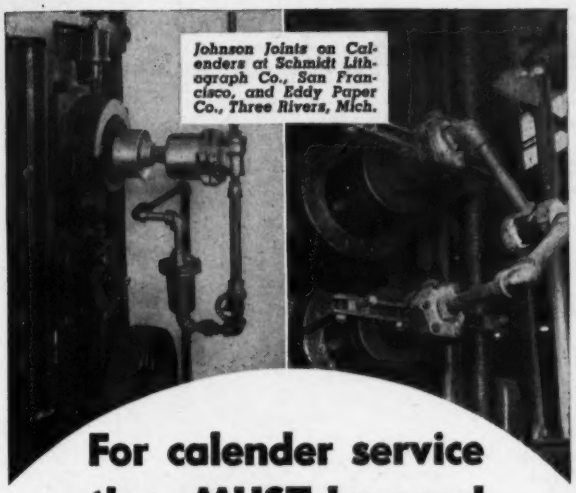
Twine

No important change has been reported in the twine market at this date. Prices are firm.

Paper Men Have Civic Jobs

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., June 21, 1943—The Chicago paper industry is well represented in the work of the Chicago Association of Commerce as indicated in the 1943 committee directory, published this week. The industry is represented on the board of directors of the big association by Walter P. Paepcke, head of the Container Corporation of America. Members of the Committee on Paper and Envelopes in addition to John D. Swigart, Swigart Paper Company, chairman, are Paul Butler, Butler Company; O. D. Bast, C. H. Worcester Company; Arthur U. Claghorn, Pioneer Paper Stock Company; J. Owen Lee, Great Lakes Paper Company; S. L. Schwarz, Schwarz Paper Company and Harry A. Swigert, Junior, Neostyle, Inc. Mr. Swigart serves as a member of the divisional council representing the paper and allied industries. The printing industries are represented by Harry B. Clow, Rand McNally & Co.; O. E. Bull, Workman Manufacturing Company; W. K. Lunt, W. F. Hall Printing Company; L. E. Schwab, Alco Gravure, Inc., and Richard H. Wise, R. R. Donnelley & Sons.



Johnson Joints on Calenders at Schmidt Lithograph Co., San Francisco, and Eddy Paper Co., Three Rivers, Mich.

For calender service they MUST be good

IT takes the tough jobs to show how completely Johnson Joints have outmoded the old stuffing box type of steam fits.

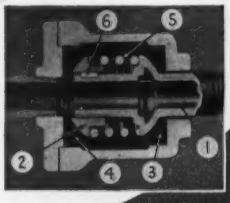
Their outstanding record on calender service is a good example. With the old style stuffing boxes, the lateral shifting of heavy calender rolls causes life-shortening wear of packing and parts—calls for frequent repacking and replacement. But with the Johnson Joint this lateral misalignment is *absorbed*, without any loss of operating efficiency. An annular space between the nipple and the housing allows the roll to shift in any direction—without impairing the seal—without causing any uneven wear.

This self-aligning feature is only one of the many reasons why more than a hundred paper mills have purchased 50 or more Johnson Joints—why more than fifty mills have purchased from 100 to as many as 800. Its packless, self-oiling, self-adjusting design ends *all* steam fit troubles—cuts maintenance cost—saves valuable production time—offers a simpler, neater way to provide for syphon drainage of rolls.

For Calenders, Paper Machines and Corrugators

Nipple (1), fastened to roll. Sliding collar (2), keyed (6) to nipple. Carbon graphite seal ring (3) and bearing ring (4), which eliminate packing and oiling. Spring (5) is for initial seating only; in operation joint is pressure sealed.

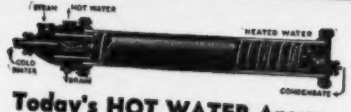
Write for new bulletin



They must be good. Over 50,000

JOHNSON *Rotary Pressure* JOINTS

installed in less than ten years



Today's HOT WATER Answer

The simplest, quickest, most economical way to heat water with steam is with the Johnson "Instant" Water Heater. Hook it right up to your high pressure steam line—needs no reducers. Simple, rugged design assures long life. Available *right now* in new all steel, lower cost construction, in complete range of sizes and capacities.

Write for Bulletin

The Johnson Corporation

828 WOOD STREET THREE RIVERS, MICH.

The Bauer DOUBLE DISC PULPER HAS GONE TO WAR!

The Bauer plant has been converted almost exclusively to munitions manufacture. We can, however, furnish pulpers to essential industries and do it promptly.

Prompt shipment of maintenance parts and supplies.

The BAUER BROS. Co.

SPRINGFIELD, OHIO

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL.
Wednesday, June 23, 1943.

BLANC FIXE—Prices on blanc fixe are firm and continue unchanged at prevailing market levels. The pulp is currently quoted at $40 per ton in barrels, at works; the powder is offered at $60 per ton, f.o.b., works. Demand reported fair for the week.

BLEACHING POWDER—Prices on bleaching powder are firm. Current demand reported improved. Bleaching powder is currently quoted at $2.50 per 100 pounds, in drums, at works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24¼ cents per pound; less than 2,000 pounds, 24¾ cents per pound, f.o.b., shipping point.

CAUSTIC SODA—Prices on caustic soda are reported unchanged. Demand for the current week is reported active. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay are firm and continue unchanged. Demand reported fair for the current week. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton at mine. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine unchanged. Government demand for war use continues heavy. Suppiles adequate. Prices firm. Chlorine is currently quoted at from $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—Quotations on some grades of rosin are higher for the current week. "G" gum rosin is currently quoted at $3.54 per 100 pounds in barrels, Savannah. "FF" wood rosin is currently quoted at $3.43 per 100 pounds in barrels, New York. Seventy per cent gum rosin size is currently quoted at $3.74 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm. Demand reported moderate for the current week. Domestic salt cake is currently quoted at $15 per ton in bulk; chrome salt cake at $16 per ton. All prices in car lots, f.o.b., shipping point.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market quotations. Demand heavy. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are unchanged for the current week. Supply situation tight. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Supply more limited for the current week. The commercial grades are currently quoted at $1.15 per 100 pounds; iron free at from $1.75 to $1.85 per 100 pounds, in bags, car lots, f.o.b., works.

SULPHUR—Prices of sulphur are firm and continue to conform to prevailing market quotations. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $18 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $16 to $21 per ton, at mills. No quotations on imported talc.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

News, per ton—			
Roll, contract	*$54.00	@	—
Sheets	62.00	"	—
* OPA Maximum Price.			
Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill			
Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag	*4.375	"	—
* OPA Manufacturers' Prices.			
Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½	1.00	"	—
White No. 2	.90	"	—
Anti-Tarnish M.F.	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Toilet—1 M. Sheets—Per Case			
Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.60	"	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila Wrapping, 35 lb.	6.00	"	6.25
No. 2 Manila Wrapping, 35 lb.	5.75	"	6.00
Boards, per ton—			
News	*48.00	@	—
Chip	*45.00	"	—
Sgl. Mla. Ll. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*63.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.10	@$46.00	$40.25	@$47.25
100% Rag	32.20	" 37.75	33.35	" 39.25
85% Rag	....	"	29.90	" 35.00
75% Rag	23.00	" 27.00	24.15	" 28.25
65% Rag	....	"	22.80	" 27.75
50% Rag	18.70	" 22.75	19.90	" 24.25
25% Rag	16.40	" 20.00	17.55	" 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds		Ledgers	
No. 1	$10.55	@$12.75	$11.70	@$14.25
No. 2	9.65	" 11.75	10.80	" 13.25
No. 3	9.20	" 11.25	10.35	" 12.50
No. 4	8.90	" 10.75	10.05	" 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@	$15.50
No. 2 Glossy Coated	12.40	"	14.00
No. 3 Glossy Coated	11.60	"	13.25
No. 4 Glossy Coated	11.15	"	12.75
No. 1 Antique (watermarked)	10.25	"	11.75
No. 2 Offset	9.60	"	11.00
A Grade E. F.	9.35	"	10.75
A Grade S. & S. C.	9.60	"	11.00
B Grade E. F.	8.85	"	10.25
B Grade S. & S. C.	9.10	"	10.50
C Grade E. F.	8.55	"	9.75
C Grade S. & S. C.	8.80	"	10.00
D Grade E. F.	8.25	"	9.50
D Grade S. & S. C.	8.50	"	9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight to Destination.

Bl. Softwood Sulphite	$76.00
Unbl. Softwood Sulphite	65.00@ 66.00
Bl. Hardwood Sulphite	73.50
Unbl. Hardwood Sulphite	63.50
Bl. Mitscherlich	81.00
Unbl. Mitscherlich	72.00
N. Bleached Sulphate	86.00
S. Bleached Sulphate	79.00
N. Semi-Bleached Sulphate	62.00
S. Semi-Bleached Sulphate	75.00
N. Unbl. Sulphate	73.00
S. Unbl. Sulphate	63.50
Bl. Soda	66.00
Unbl. Soda	62.00
Groundwood	46.00

Transportation Allowances Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags (Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.50	@	7.25*
Silesias No. 1	—	"	5.75*
New Unbleached	6.75	"	7.50*
Blue Overall	—	"	5.50*
Fancy	—	"	3.50*
Washables	—	"	3.00*
Bleached Khaki Cuttings	—	"	4.25*
Unbleached Khaki Cuttings	—	"	3.50*

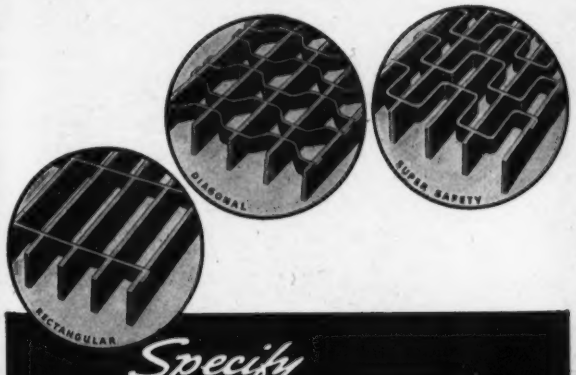
* OPA Maximum Prices.

SCREENS for PAPER and PULP MILLS

PERFORMANCE of your Centrifugals, Shakers and Drainers definitely improved by the use of precision screens built to your specifications. Let us "sit in" on your screening problems.

The Harrington & King PERFORATING Co.

5652 Fillmore St., Chicago — 114 Liberty St., New York

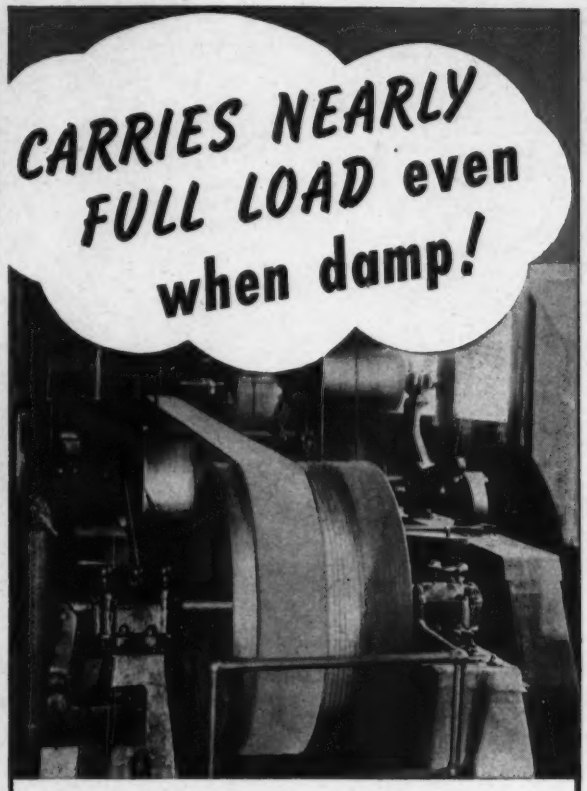


Specify TRI-LOK

OPEN STEEL FLOORING • SAFETY STEPS
CONCRETE ARMORING T. TRI-LOK

DRAVO CORPORATION
300 PENN AVENUE, PITTSBURGH, PA.
REPRESENTATIVES IN PRINCIPAL CITIES

Full descriptive catalog of Tri-lok Grating, Safety Treads and other products on request.



● **TANNATE LEATHER BELTING** is cemented with waterproof cement and treated to resist moisture . . . Laps and plies won't separate . . . Even dampness combined with heat up to 170° F. does not affect it materially!

Consequently, the adverse conditions in many paper mill operations have little or no effect on the efficiency of this belting, and Tannate's exceptional grip and strength goes fully to work . . . gets consistently high output from machines, with little maintenance and at low unit costs.

New Paper Mill Bulletin that gives many actual Tannate service records proves this point . . . Get your free copy . . . No obligation!

STEP UP PRODUCTION with RHOADS Tannate WATERSHED LEATHER BELTING

—Established 1702—

J. E. RHOADS & SONS
35 North 6th Street Philadelphia 6, Penna.
NEW YORK • CHICAGO • ATLANTA • CLEVELAND

Old Rags

White, No. 1—			
Repacked	*3.80	"	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.25	@	4.35
Wool Tares, light	4.25	"	4.50
Wool Tares heavy	4.50	"	5.00
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	2.00	"	—

* OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.57½	"	—
Mixed Books	.85	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Mixed Ledger, colored	1.87½	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.85	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	.85	"	—

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17½	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1	.07½	@	.07½
New White No. 2	.04½	"	.05
Light Silesias	.04½	"	.04¾
Silesias, No. 1	.04	"	.04¼
Black Silesias, soft	.03¾	"	.04
New Unbleached	.07¼	"	.07½
Washable Prints	.03¼	"	.03½
Washable No. 1	.02	"	.02¼
Blue Overall	.04½	"	.05½
Cottons—According to grades—			
Washable shredding	—	"	.01¾
Fancy Percales	.03¼	"	.03½
New Black Soft	.02¾	"	.03
New Dark Seconds	1.75	"	2.00
Khaki Cuttings—			
No. 1 O. D.	.03	"	.03¼
No. 2 Mixed	.02¼	"	.02½
Corduroy	.01¾	"	.02¼
New Canvas	.04¾	"	.05¼
New Black Mixed	—	"	.02½

Domestic Rags (Old)

White No. 1—Repacked	3.80	"	—
White No. 2—Repacked	2.90	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings— (Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
Sisal Rope	3.75	"	—
Mixed	1.00	"	1.50
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	3.75	@	4.00
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	1.35	"	1.50
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.60	"	3.85
Wool Tares—			
Foreign	(nominal)		

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	3.75	@	4.00
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	1.35	"	1.50
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.60	"	3.85
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Pouches	4.65	"	4.87½
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Bagging	1.35	"	—*

* OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¾	"	.05
New White No 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06½
Underwear Cutters, Bleached	.06¾	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03	"	.03½
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¾	"	.03½
New Canvas	.06¼	"	.06¾
B. V. D. Cuttings	.06¾	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—*
Miscellaneous	3.20	"	—*
White No. 2—			
Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.35	"	—*
Quality B	1.20	"	—*
Quality C	.95	"	—*
* Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

(F. o. b Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices.

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Kraft Corrugated Cuttings	2.25	"	—
Old Corrugated Containers	1.15	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—
No. 1 White Ledger	2.17½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—

East Engin. Library
JUN 1 1943
JUN 29 1943

PAPER TRADE JOURNAL

JUNE 24, 1943

Established 1886

The Right to Write

"Congress shall make no law . . . abridging the freedom of speech and of the press."

CONSTITUTION OF THE UNITED STATES

Freedom of expression is one of the cornerstones of our national growth. This faith has again been affirmed by its inclusion as one of the Four Freedoms essential to the democratic way of life. As messenger of truth, Paper serves a vital function in these crucial times.

GOTTESMAN & COMPANY

—INCORPORATED—

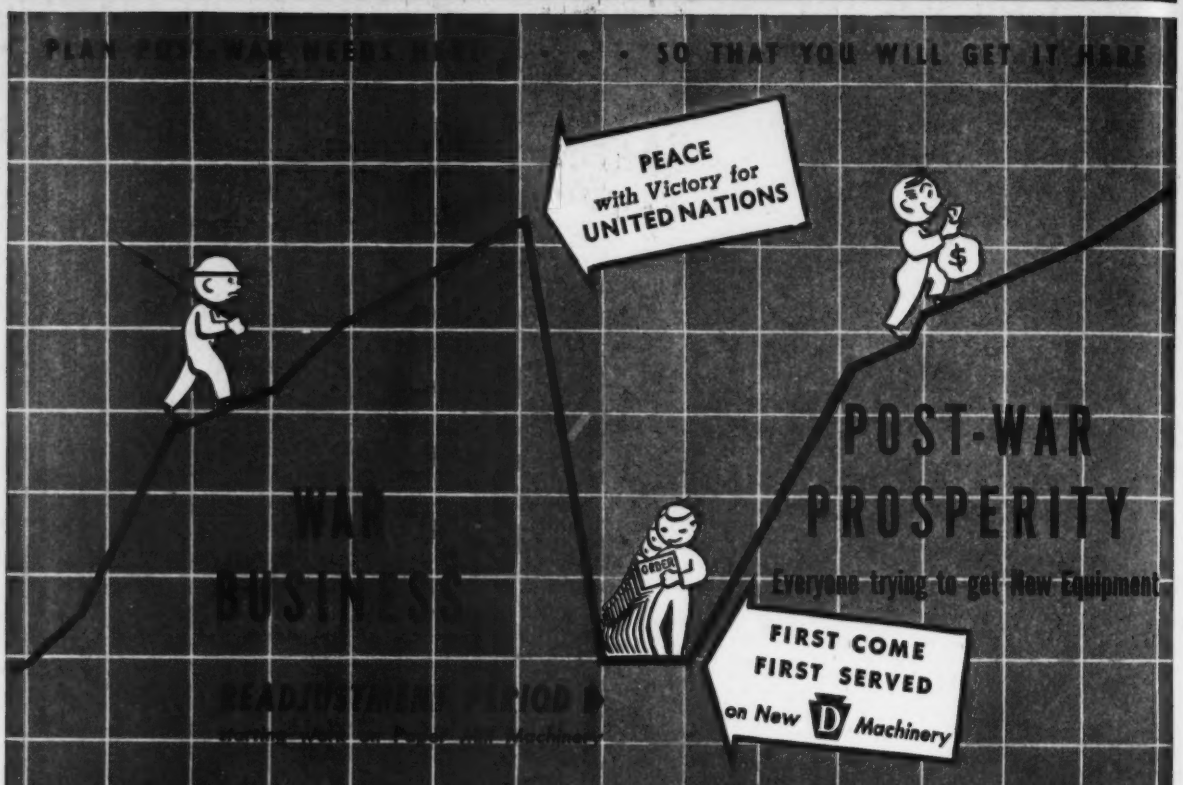
New York **Stockholm**

Agencies

BUENOS AIRES, CARACAS, HAVANA, RIO DE JANEIRO, SANTIAGO DE CHILE, SAO PAULO

REPORT OF SUPERINTENDENTS' CONVENTION

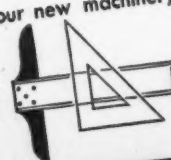
DOWNINGTOWN



LOOKING AHEAD to the time when

Victory is Won by the United Nations, we can see paper and board mill management clamoring for new "this" and "that" and new "complete machines." These will be desperately needed to replace equipment, which has become badly worn, inefficient, and obsolete, due to the war-time ban on the usual replacements, and because post-war demands of competition will be too much for "exhausted" machinery. . . . You can give yourself a Priority Rating of AAA on Delivery after the war, by letting our engineers make all the plans NOW, for the machinery that you consider will be necessary THEN. These plans can then be put in our shop as soon as the Peace is declared. Delivery of your new machinery will thus be months ahead of those who fail to PLAN NOW.

DOWNINGTOWN MFG. CO.
Downingtown • Pennsylvania

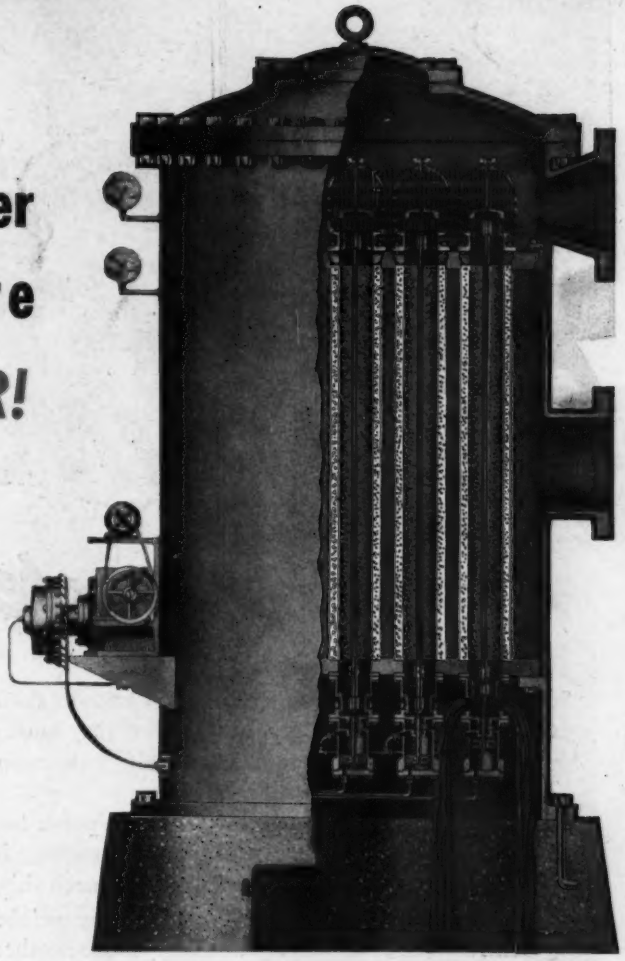


PLAN NOW!

PLAN NOW • GET A PRIORITY RATING OF D AAA ON POST-WAR DELIVERY

Automatic WATER FILTERS

Now, more than ever Paper Mills Require *CLEAN, FILTERED WATER!*



The war restrictions on bleaching no longer permit the use of dirty water in your paper mill. Adams automatic water filters are designed to produce a continuous flow of filtered water with automatic backwashing. The large filter medium removes the objectionable dirt in suspension. The multiple tube design has no moving clearances and is fully automatic, one tube backwashed at a time while filter is delivering rate of capacity. Adjustable control gives flexibility of backwashing to adjust for seasonal conditions of your river or lake source of water supply; built in four sizes from 300 gpm. to 2000 gpm. Write for Bulletin 901.

★ R. P. ADAMS COMPANY, INC. ★

77 CHICAGO STREET, BUFFALO, N. Y.

ADAMS PORO-STONE AND PORO SCREEN FILTERS

EMERGENCY LANDING — Protected by Paper

Supplies for a distant fighting force—on a South Pacific Island, on a North African Coast. No docks to use. No time to lose. Into the surf they must go—thousands of cases of food, clothing, munitions. Hours and days must pass before they can be collected. And the contents must be protected.

That urgent problem was solved by the paper industry—with sturdy water-proof packing that withstands the ravages of the sea, the crushing impact of the breakers and the shore.

Millions of tons of paper are protecting such shipments safely to their destination, releasing lumber and metal for critical needs, saving weight and precious shipping space.

Thus has the essential paper industry made another major contribution to the service of supply, to the winning of the war.

KENWOOD WOOL PRODUCTS

F. C. Huyck & Sons is proud to be serving an industry so essential to the war program. Our skill, our facilities and our 72 years of experience are always available in solving the special felt problems created by urgent wartime paper needs.

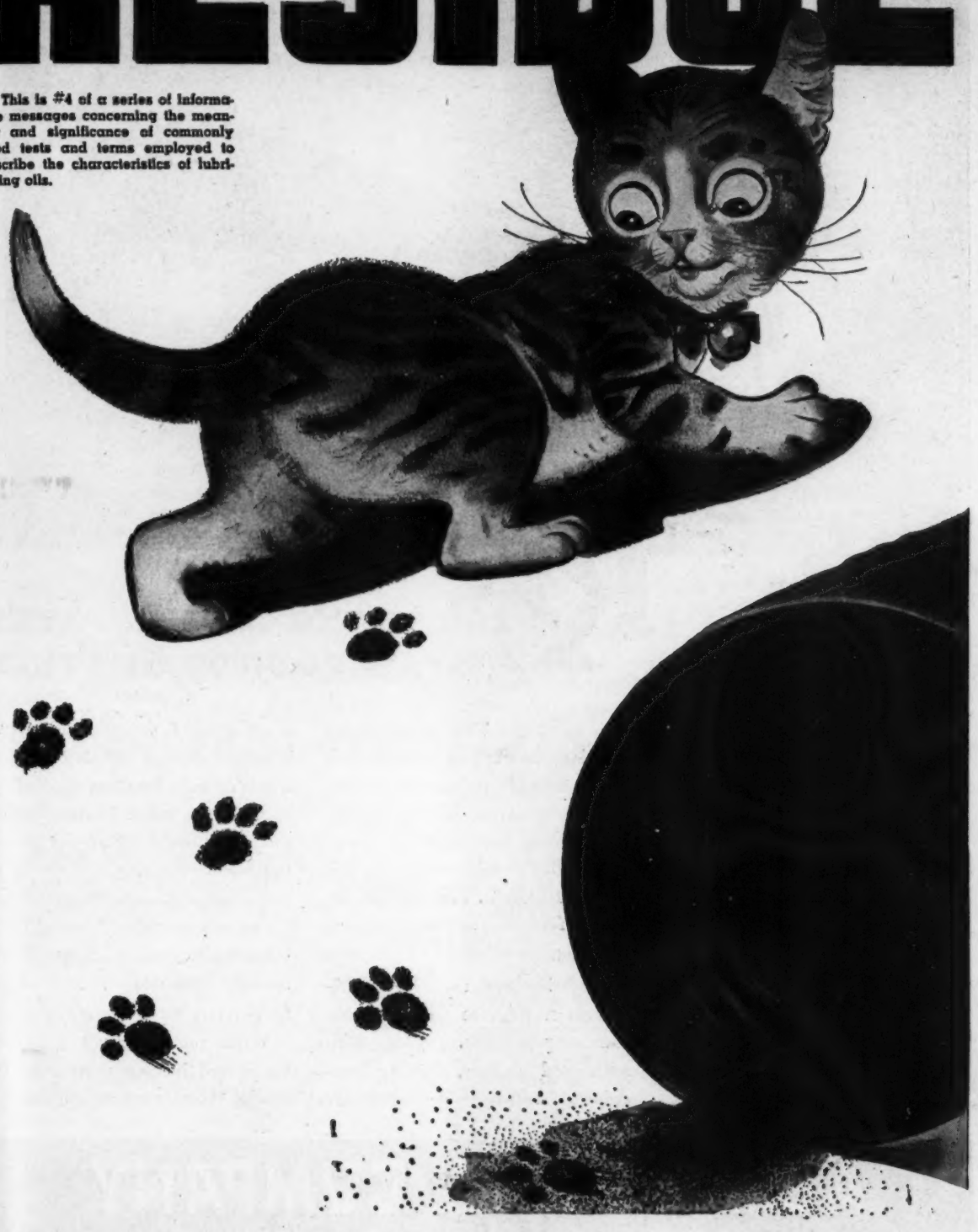
F. C. HUYCK & SONS

Kenwood Mills

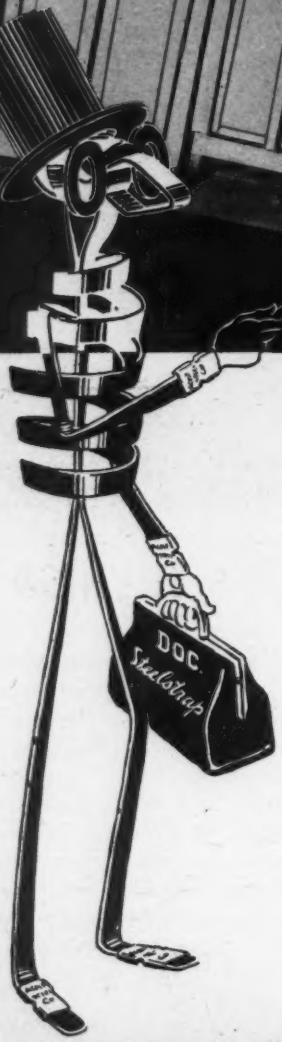
Albany **New York**

RESIDUE

* This is #4 of a series of informative messages concerning the meaning and significance of commonly used tests and terms employed to describe the characteristics of lubricating oils.



INDUSTRIAL LUBRICANTS



Rx FOR SAVING TONS OF PAPER —A FEW POUNDS OF STEEL

Tons of paper are reaching destination quickly and safely through the use of a few pounds of Acme Steelstrapping. These strong steel bands . . . properly applied to skids, rolls, cases and carload ladings . . . are low-cost assurance for safe arrival of vital paper shipments.

Acme has had extensive experience in solving the shipping problems of paper men. Together with mills and carriers, bracing procedures have been developed for every type of paper shipment. As a result, damage has been cut to a minimum . . . handling speeded up . . . and space saved. In the shipping room, modern Acme strap-applying equipment saves time . . . conserves man-hours . . . and cuts costs.

Carloads braced with Acme Unit-Load Bands speed loading and unloading operations . . . release freight cars sooner.

Write today for all the facts on proved bracing procedures. Of course, there is no obligation.

ACME STEEL COMPANY

2818 ARCHER AVENUE, CHICAGO, ILLINOIS

ALSO BRANCHES AND SALES OFFICES IN OTHER PRINCIPAL CITIES

NO. 3 OF A SERIES... *The Dollars and Sense of H. & M. Developed Formulas*

UNIFORMITY THROUGH CONTROL OF FURNISH

FROM LONG EXPERIENCE, everybody in the paper business knows the sales value of a uniform sheet of paper. Uniform as to color, surface and body formation.

However, it stands to reason that raw material variations will greatly influence this uniformity. Recognizing this factor, H. & M. has long since established close control over the materials used in the manufacture of colors and has carefully standardized the colors themselves.

But color standardization by itself will not produce uniformity in papers. Today, there is more than the usual variation in furnish to be considered. Color reformulation, of course, can do much to minimize variations in furnish. And this can often be taken care of at the mill. A valuable guide, however, can be worked out for you in our laboratories. It is there that the relationship between furnish, fillers and colors can be most economically and successfully investigated. The building and revision of furnish and color formulation are an outstanding part of H. & M. Technical Service.

For general applications, of course, mill superintendents use the H. & M. shade card, "Colors for Paper," as a *standard* desk reference. But if you have a special problem, your H. & M. representative will be glad to see that our laboratories handle it for you.

HELLER & MERZ DEPARTMENT

CALCO CHEMICAL DIVISION • AMERICAN CYANAMID COMPANY

BOUND BROOK, NEW JERSEY

Now

APPEARANCE IS DOUBLY IMPORTANT!

In Paper — Opacity, Whiteness and Brightness still are the qualities which combine to make good appearance.

PAPER BUYERS have sincere sympathy for the paper manufacturer struggling under the weight of basic material shortages and war-time restrictions, *but they still demand papers of good appearance.*

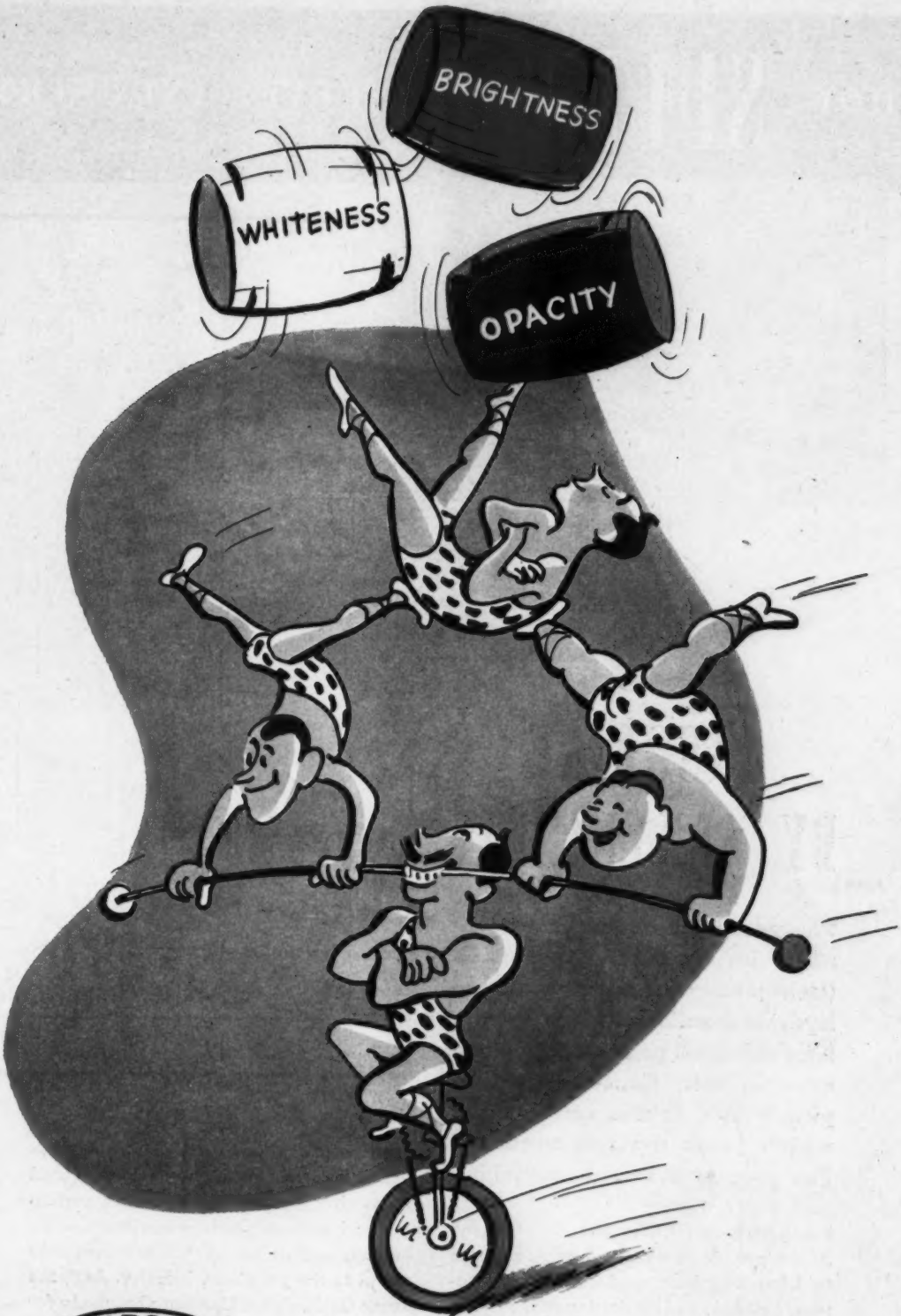
In this situation the superior characteristics of TITANOX pigments give a unique advantage to their users.

Other pigments may give visual brightness up to the authorized limit; but the blue-white of TITANOX gives a greater visual whiteness than do pigments of the yellow-white type. Thus the opacity and blue-whiteness of TITANOX pigments contribute to the good appearance which is demanded even in war-time papers.

TITANIUM PIGMENT CORPORATION
SOLE SALES AGENT
111 Broadway, New York, N. Y.; 10 South Michigan Ave., Chicago, Ill.; 350 Townsend Street, San Francisco, Calif.; 2172 Enterprise Street, Los Angeles, Calif.

TITANOX
TRADE MARK

OPACITY • WHITENESS • BRIGHTNESS



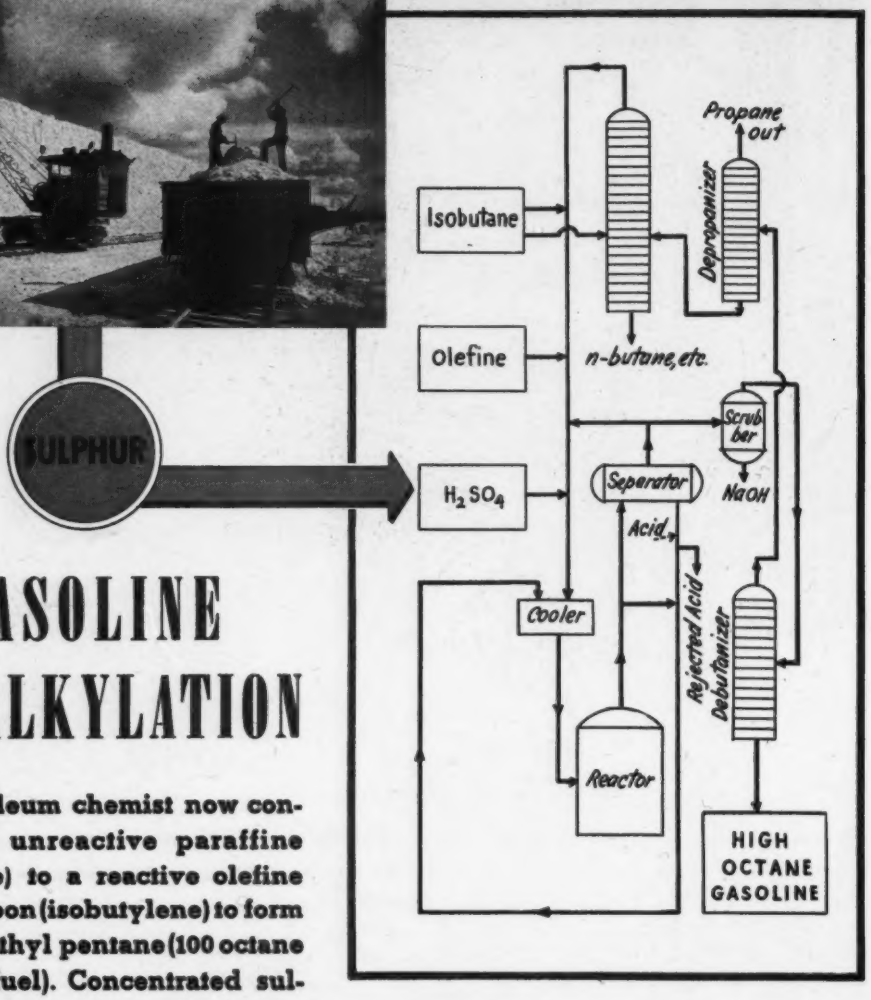
DU PONT

DU PONT "TI-PURE" *for better balanced papers*

(Titanium Dioxide)

E. I. DU PONT DE NEMOURS & CO. (INC.), PIGMENTS DEPARTMENT, 1007 MARKET ST., WILMINGTON, DEL.

HOW SULPHUR SERVES INDUSTRY



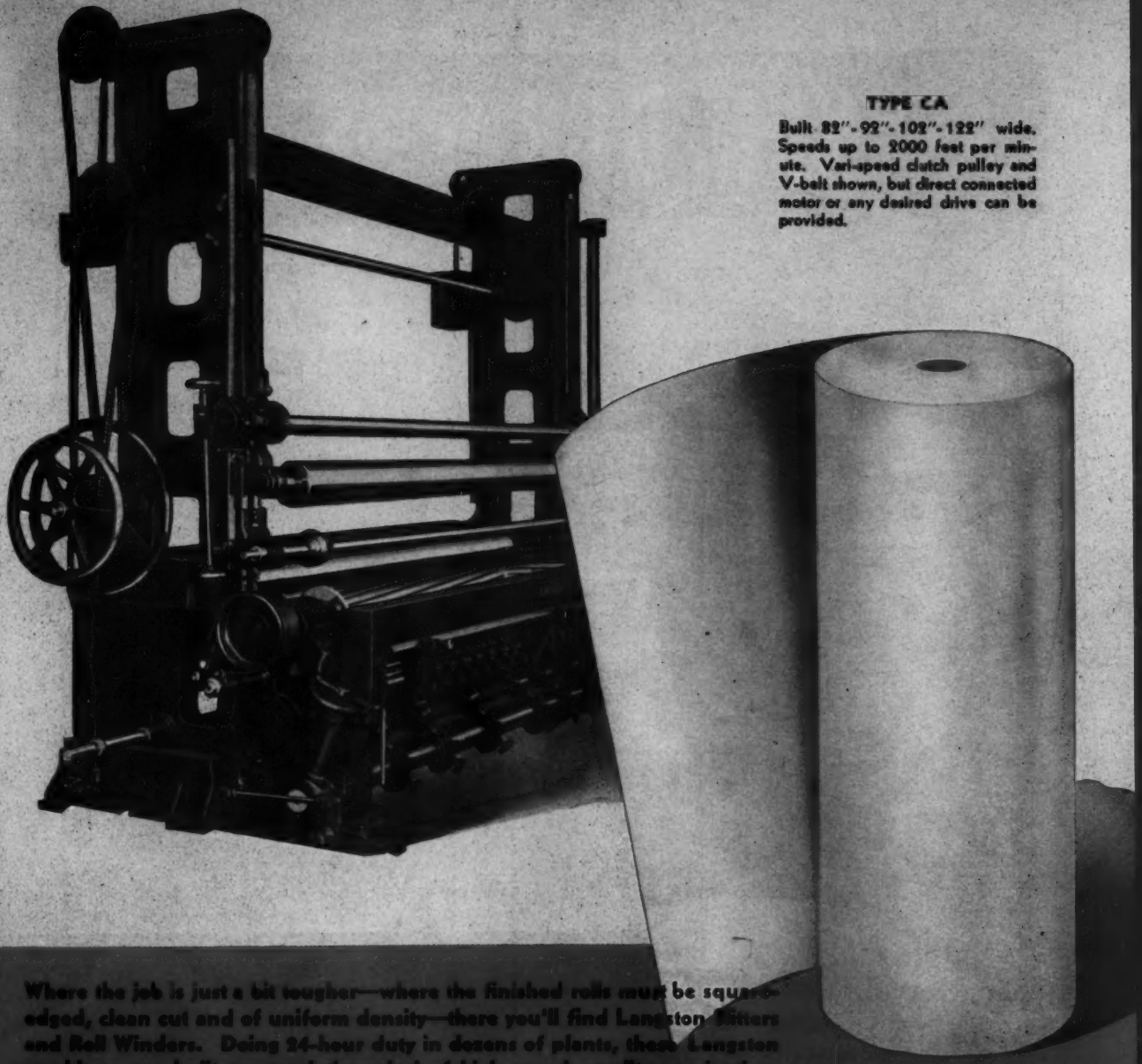
GASOLINE BY ALKYLATION

The petroleum chemist now connects an unreactive paraffine (isobutane) to a reactive olefine hydrocarbon (isobutylene) to form 2,2,4 trimethyl pentane (100 octane aviation fuel). Concentrated sulphuric acid is the active agent which joins the two together. The process is called alkylation.

The petroleum industry uses Sulphur and its compounds in various ways. Sulphuric acid has long been used in refining kerosene, gasoline, and lubricating oils. Sulphur dioxide is also used as a refining agent and can also be combined with petroleum products to form plastics. Sulphur as such is used in refining gasoline and in making cutting oils and extreme pressure lubricants. Sulphur and its compounds are extremely useful to the petroleum industry. And, the Texas Gulf Sulphur Company has ready for shipment the Sulphur to meet all its needs.

TEXAS GULF SULPHUR CO.
75 E. 45th Street New York City
Mines: Newgulf and Long Point, Texas

6-TG-1



TYPE CA

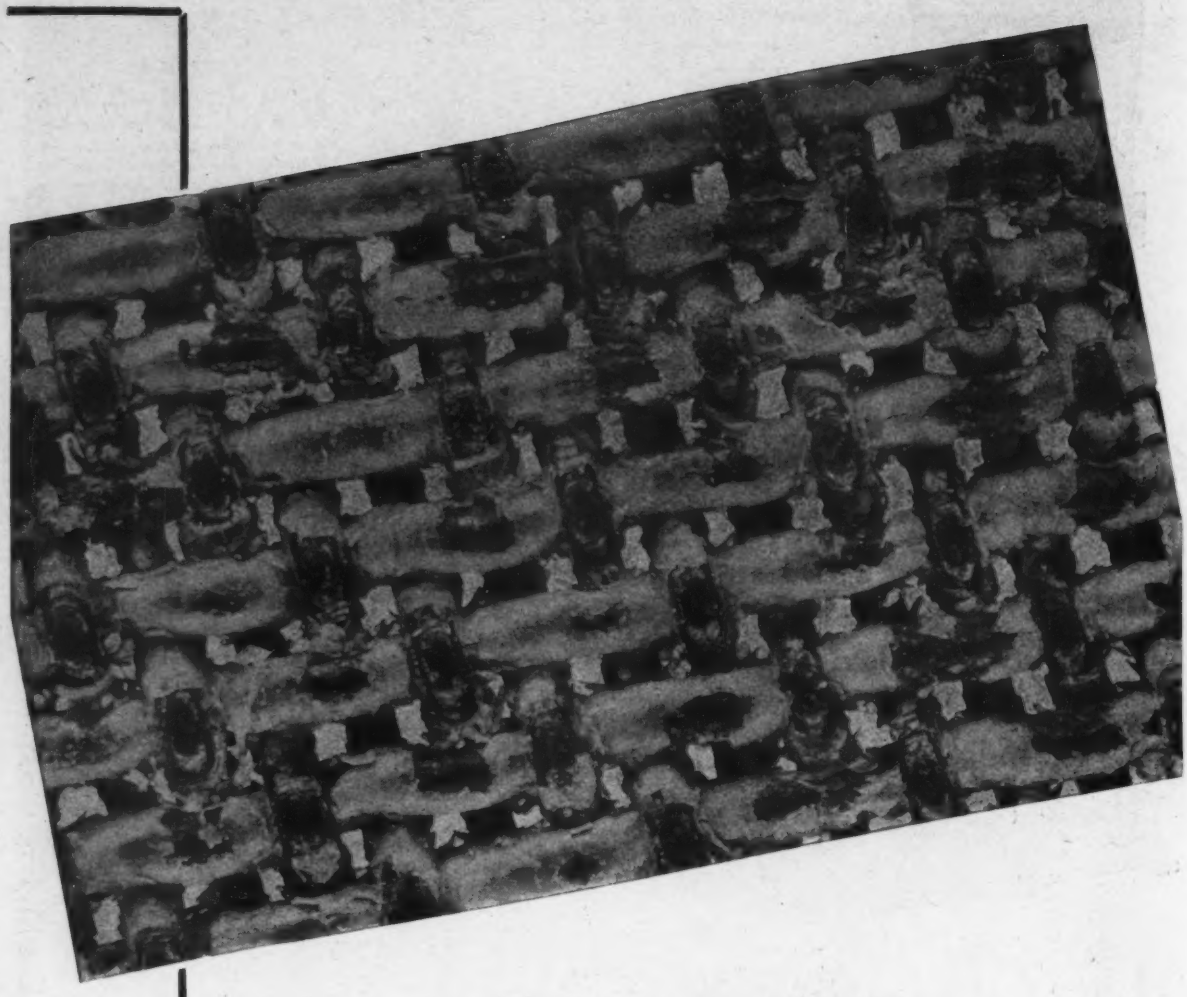
Built 82"-92"-102"-122" wide. Speeds up to 2000 feet per minute. Vari-speed clutch pulley and V-belt shown, but direct connected motor or any desired drive can be provided.

Where the job is just a bit tougher—where the finished rolls must be square-edged, clean cut and of uniform density—there you'll find Langston Slitters and Roll Winders. Doing 24-hour duty in dozens of plants, these Langston machines are built to stand the grind of high-speed, quality production. For every grade of paper, for wide or narrow cuts, small or large diameters, there is a type and size to meet your needs.

★ ★ rolls well-wound, of compact weight travel better and save on freight ★ ★

SAMUEL M. LANGSTON COMPANY
CAMDEN, NEW JERSEY

Langston
SLITTERS & ROLL WINDERS



SCALING

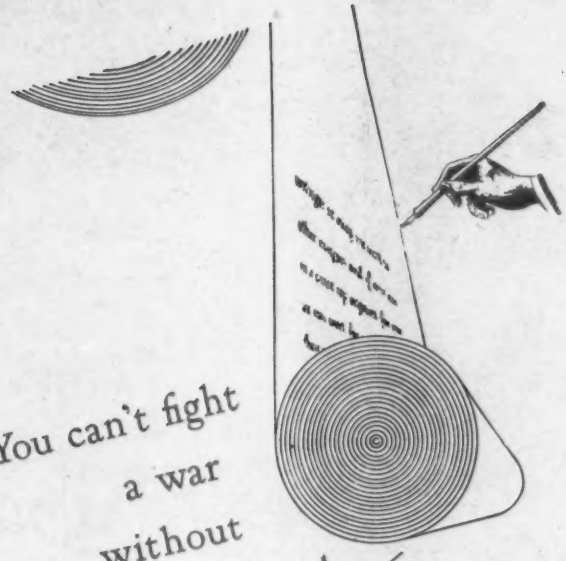
Certain furnishes or water conditions may cause a scale to be deposited on the wire. When this scale forms it not only results in a decrease of drainage efficiency, but it may also shorten the life of the wire by increasing erosion.

The photomicrograph above illustrates a case of excessive scaling. As the scale flakes off it takes with it minute pieces of metal in a process of erosion that weakens the cloth.

This is the fifth of a series on factors contributing to wire life.

Appleton Wire Works, Inc. Appleton, Wis.

FOR VICTORY
BUY MORE
WAR BONDS



You can't fight a war without paper!

Paper and paperboard are wrapping tank and plane parts destined for Africa and Murmansk, Alaska and Guadalcanal . . . pinch-hitting for tin, rubber, aluminum, steel . . . combining with plastics to form cartons that can stand immersion for days in water or oil . . . packaging cigarettes, shells, cereals, cartridges, small arms, medicine.

But paper's greatest job is still to provide the forms needed to enroll, train, equip and supply an army of nearly 9,000,000 men, to say nothing of the Navy, the Marines or Merchant Marine . . . to put rationing of sugar, gasoline, tires, coffee, canned goods and other commodities into effect . . . to spur workers to produce more with posters, newspapers, magazines . . . to sell war bonds . . . to maintain communications between departments of Government and the military . . . to permit orderly buying of a thousand materials for our fighting men.

All possible tribute to an industry so vital, so essential to victory. We see clearly now that "you can't fight a war without paper."

COLUMBIA Essential Industrial CHEMICALS

SODA ASH • CAUSTIC SODA • LIQUID CHLORINE • SODIUM BICARBONATE • SILENE* • CALCIUM CHLORIDE
SODA BRIQUETTES • MODIFIED SODAS • CAUSTIC ASH • PHOSFLAKE • CALCENE** • CALCIUM HYPOCHLORITE
*Hydrated Calcium Silicate **Precipitated Calcium Carbonate

PITTSBURGH PLATE GLASS COMPANY
COLUMBIA CHEMICAL DIVISION
GRANT BUILDING • PITTSBURGH, PA.

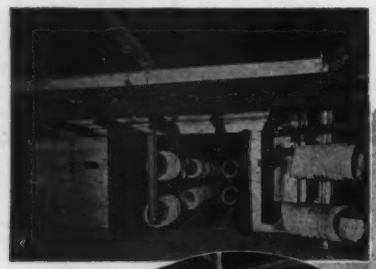
CHICAGO • BOSTON • ST. LOUIS • PITTSBURGH • NEW YORK • CINCINNATI • CLEVELAND • PHILADELPHIA • MINNEAPOLIS • CHARLOTTE

Business Week, June 19, 1943

COLUMBIA CHEMICALS

We've got a new boss and a bigger job to do!

Ross Oven Baking Wire



Ross Panel Housing for Continuous Core Oven for Magnesium Castings

Armature Cores Are Being Uniformly Baked In This Ross Compartment Oven

It won't surprise our customer friends in the Paper industry to learn of the many extra assignments we have been called upon to handle in this time of emergency. You knew the extent of our knowledge and experience in conditioning, circulating and handling air for processing. We used it to solve many paper mill problems and problems in the metal industries as well.

It was the kind of experience that Uncle Sam needed urgently so we are working for him—building ovens, dryers and air handling systems that are speeding up the production of magnesium and aluminum castings and parts for airplanes, drying powder, coating shells and scores of equally essential war work products.

Our services are still available to paper mills that require systems for producing high priority war work. Our engineering help is still available to all other paper mills with problems in their post-war development work.

We are working a lot—and learning a lot. Bring us your problem. We will help you in any way we can.

Not 90% but 100%

of all our employees in offices and shops are purchasing bonds amounting to not 10% but more than 10% of our entire payroll.

• • • ★ • ★ • ★ • • •

Buy More War Bonds!
Collect More Scrap!
Conserve Materials!

Ross Continuous Oven for Heat Treating Magnesium Alloy Castings

J. O. ROSS ENGINEERING CORPORATION

Main Office — 350 MADISON AVE., New York, N. Y.

CHICAGO—201 North Wells Street

DETROIT—12953 Greeley Avenue

ROSS ENGINEERING OF CANADA, LIMITED, Dominion Square Building, Montreal

wrapping up a victory

Passing the ammunition starts far behind the battle line. A transport docks. A cargo net swings ashore. By train or truck, plane or dog sled, supplies, ammunition and equipment are headed for the gun crews.

Before this journey begins, vital war material must be protected against damage—protection supplied in many ways by paper.

Thousands of tons are needed to meet war needs alone. And one reason for high production in American paper mills is Westinghouse electronic equipment.

Paper is produced at high speed from soupy pulp to finished product in one continuous process. To assure uniform quality, speeds of motor drives are automatically regulated by electronic controls. Voltage is regulated by the same type of equipment. Where accurate register is required, electronics does the job. Through these steps of production, and in final rewinding, electronic equipment controls the process—silently and automatically.

The application of electronics to the paper industry is an excellent example of how this type of control equipment can serve continuous-process industries.

* * *

Electronics is at work today in applications as familiar as your radio tubes. In new, secret applications, electronics has become the nerve center of our armed forces. It is helping almost every war industry roll back the old limits on production capacity. Your Westinghouse representative can tell you about today's practical applications of electronic devices in your industry. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

J-91008

Westinghouse ELECTRONICS

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

FIT THE VALVE TO THE SERVICE

WALWORTH STEEL GATE VALVES can be furnished with welding ends, screwed ends, or flanged ends. Sizes from 2" to 24" inclusive. For hand operation, air or gas motor operation, or electric motor operation.

WALWORTH STEEL GLOBE VALVES can be furnished with welding ends, screwed ends, or flanged ends. Sizes from 2" to 8" inclusive. For hand operation, air or gas motor operation, or electric motor operation.

WALWORTH LUBRICATED PLUG VALVES are made in sizes from ½" to 24" inclusive, for pressures from vacuum to 5000 psi.

YOU CAN CHOOSE A WALWORTH *Steel* VALVE

engineered to your particular service

Be sure that every valve fits the service for which it is selected—and fits exactly. In the Walworth line there's a type for every job, engineered so as to assure maximum economy and worry-free performance. Each Walworth Valve has all the characteristics required for its special service.

For instance, Walworth makes a complete line of cast steel valves. They can be furnished in both gate and globe types with welding ends, screwed ends, or flanged ends. Heavy walls give enduring strength. Deep stuffing boxes eliminate troublesome leakage. Streamlined ports decrease pressure drop. These Walworth Valves have what it takes in every detail of design, metallurgy, and construction to lick your toughest jobs.

For the "difficult" fluids the answer is often found in a Walworth Lubricated Plug Valve. It opens or closes with but one-quarter turn of the valve handle, and a positive tight shut-off is assured. It's easy to operate and remains completely sealed against leakage in both the open and closed positions.

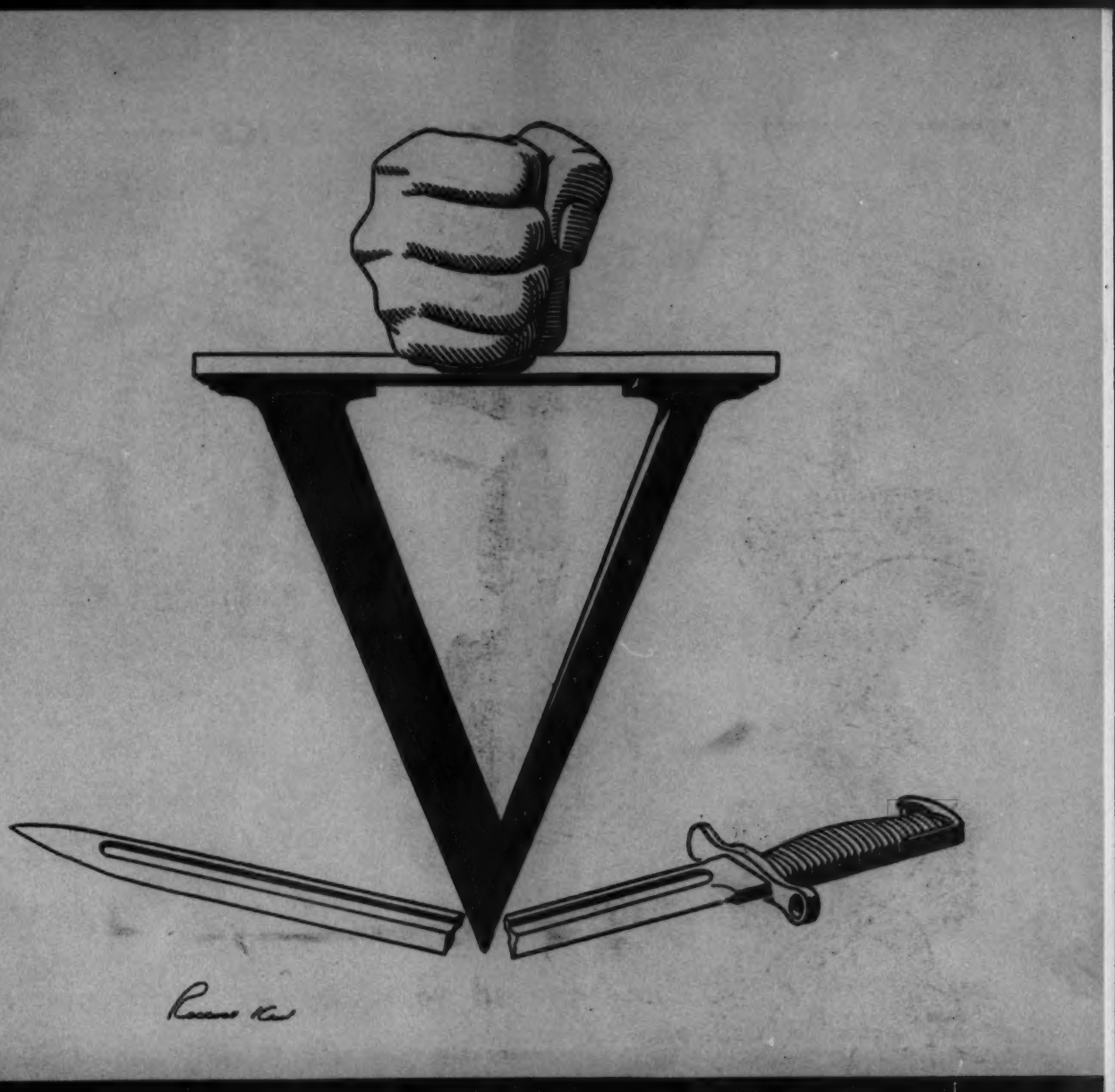
For economy's sake, be sure to "fit the valve to the service."

To help you "fit the valve to the service" you'll find pertinent information on Walworth's complete line of valves, fittings, pipe, and pipe wrenches in the new Walworth Catalog 42. Included are 78 pages of practical engineering data that simplify valve selection and make piping layouts easier. Write, on business stationery, for your free copy. Address: Walworth Company, 60 East 42nd Street, New York, N. Y. Department 612.

BOSTON WORKS
KEWANEE WORKS

WALWORTH
valves AND fittings

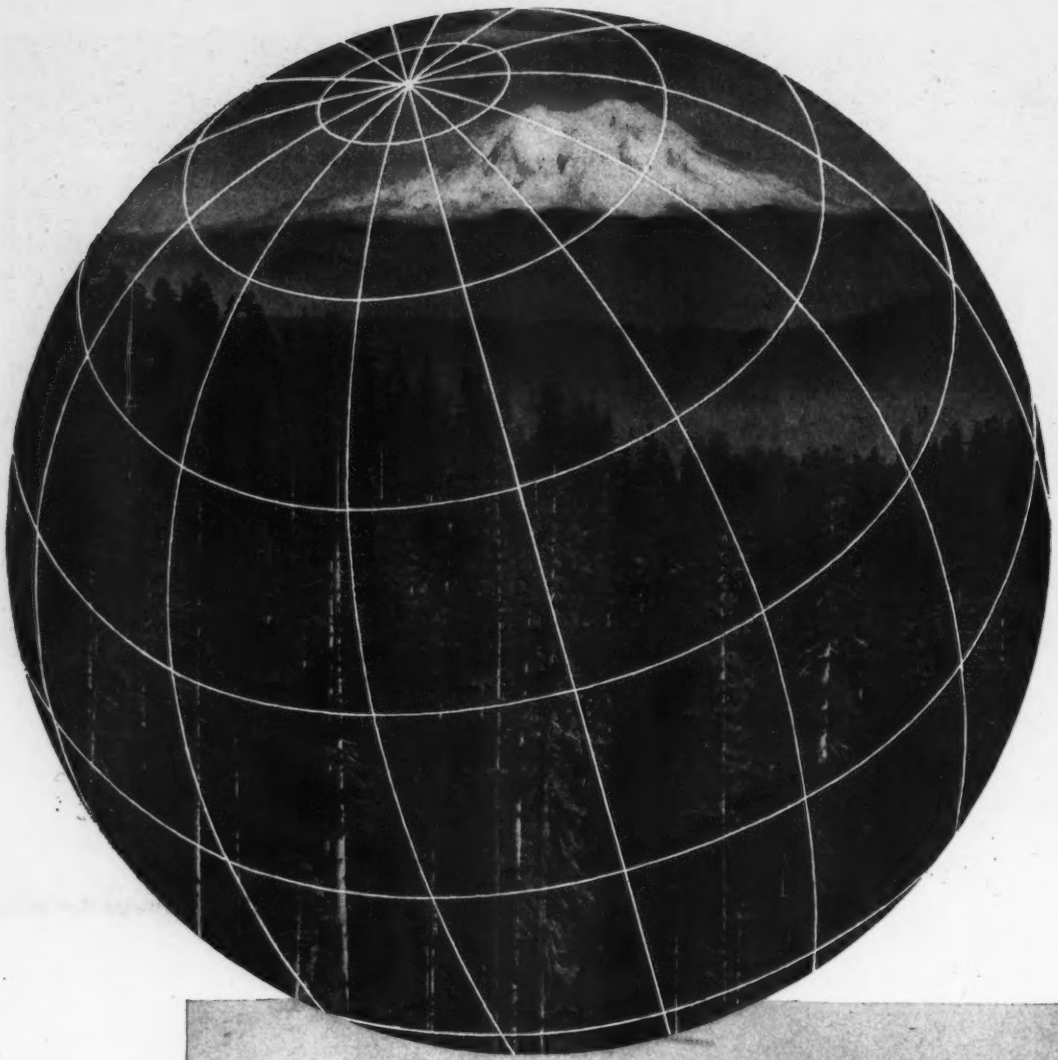
DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD



WE ARE DISCOVERING SOMETHING IN THESE DARK DAYS OF WAR . . We are discovering that our America is just about twice as strong, twice as capable and twice as productive as we had ever before imagined. We are proving in the shop and in the forge and in the factory that there is no physical achievement which may be desirable that is impossible to us. We can do, as a people, anything . . literally anything . . that we want to do.

DONALD NELSON

GENERAL DYESTUFF CORPORATION



A WORLD APART?

Peace and quiet reign in the realm of these timber giants of our Pacific Northwest. This would seem to be "a world apart" . . . . a place far removed from the responsibilities and the privileges of active participation in war. • Yet, in harvesting our timber we are finding as a nation that our forest land is a tremendous victory garden— that timber is a crop. • Its fruits include staples like rough and finished lumber . . . like a hundred kinds of paper to promote and sustain the vitality of enterprises military and civilian. And the forest yields an endless variety of essential products like fabrics, special packages, plastics . . . . even gunpowder. • It is fortunate for this country and its allies that vast forests like those of the Pacific Northwest are yielding an abundant and continuous supply of things needed at home and abroad by men at war.

Pulp Division
Weyerhaeuser Timber Company

BLEACHED AND UNBLEACHED SULPHITE PULP
Mills at Longview, Washington • Everett, Washington

A RECORD PERFORMANCE
by a C-E Chemical Recovery Unit

On February 20, 1940 a new C-E Chemical Recovery Unit was placed in service at the West Point, Virginia plant of the Chesapeake Corporation.

ON THE JOB 96.5% OF THE TIME FOR 3 YEARS

Up to January 1, 1942, a period of 1045 days, this unit had been in service 96.5% of all the time in that period. And the 3.5% outage included holidays and mill shutdowns for scheduled inspection, maintenance and all other causes.

AVERAGED 29% ABOVE RATED STEAM CAPACITY

Equally important is the fact that for this entire period (1045 days) this unit *averaged* 2,382,000 lb of steam per 24-hr day. This is 24% above the anticipated full-load steam production as stated in the contract. For the time the unit was *actually* in service this figure becomes 2,471,000 lb of steam per day or nearly 29% above rated steam capacity.

Little wonder then that here as well as at other plants operating C-E Chemical Recovery Units, the operators say "These units are *right*."

A-741

COMBUSTION ENGINEERING COMPANY, INC.

200 MADISON AVENUE, NEW YORK, N. Y.

From the thinnest tissue to the heaviest board, there is a Hamilton Felt that will do your work better, faster and at lower cost.

Measured by the yardstick of man hours or of steam consumption, by output of tonnage or by quality of product, Hamilton Felts represent the utmost in value. • Once properly installed, Hamilton Felts require the minimum of down time for adjustments. They remove more water at the wet end of the machines, permitting higher speeds and delivering dryer sheets to the drier rolls, with corresponding saving of steam. They give better formation to the sheets, reducing broke and preventing accidental injury to workers. They stand up under hard service long continued.

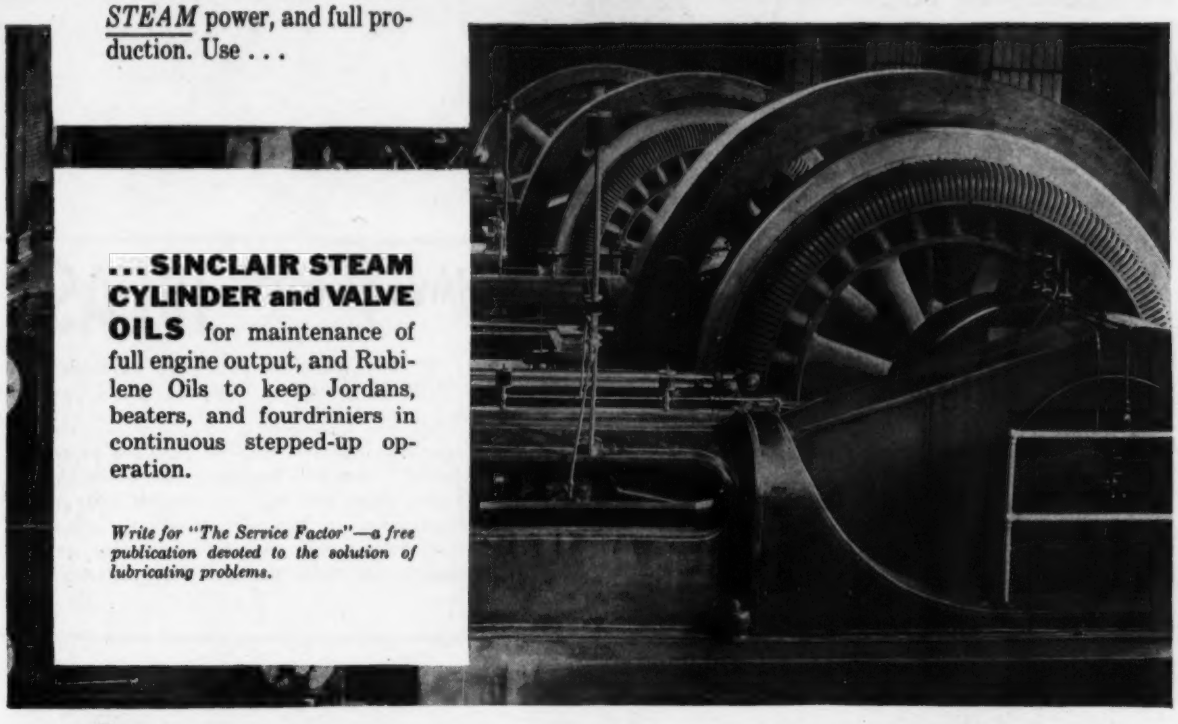
SHULER & BENNINGHOFEN, HAMILTON, OHIO

• Miami Woolen Mills •

Hamilton Felts

• Established 1858 •

.....FIGHTING STRENGTH needs *STEAM* power, and full production. Use . . .



...SINCLAIR STEAM CYLINDER and VALVE OILS for maintenance of full engine output, and Rubilene Oils to keep Jordans, beaters, and fourdriniers in continuous stepped-up operation.

Write for "The Service Factor"—a free publication devoted to the solution of lubricating problems.

SINCLAIR INDUSTRIAL OILS

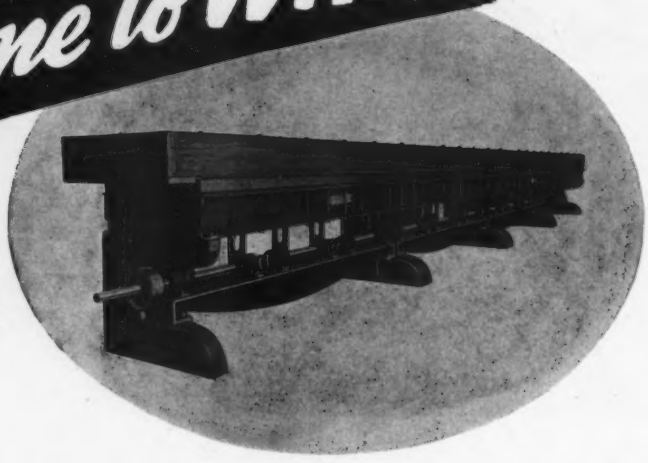
FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE NEAREST SINCLAIR OFFICE

SINCLAIR REFINING COMPANY (Inc.)

2540 West Cermak Road, Chicago • 10 West 51st Street, New York City • Rialto Bldg., Kansas City • 573 West Peachtree Street, Atlanta • Fair Building, Ft. Worth

All of our plant facilities are now being used to make equipment needed by our fighting forces. All paper mill and wood room equipment withdrawn from our production lines, except where permission to make such equipment is granted by the War Production Board.

Gone to WAR



The all-important job now is to get equipment for our fighting forces. But, when the war is over we shall be better able to meet your needs for new machinery and parts.

in the meantime

Note the question to the right. We ask this question because we believe superintendents have ideas for production short cuts that can well be used by the industry.

HAVE *you* ANY IDEAS?

Or new machines you have developed and would like to have manufactured?

We are interested in any new machine or equipment that will help the pulp and paper industry. If you have new ideas, we would like to discuss them with you and possibly arrange for development of such ideas now—and when we beat the Axis, we shall be prepared to actively manufacture those items developed during the war.

D. J. MURRAY MANUFACTURING CO.

WAUSAU MURCO **WISCONSIN**

Trade Mark Reg. U. S. Pat. Off.

"Alltogether dis-fellow box belong kigh-kigh he dry-bone!"

Ask the Marines . . . they know what this means. It's Pidgin English* . . . Solomon Islands talk . . . and it means:

"All these boxes of food are tough!"

They have to be. It takes tough containers to supply a tough army. That's where the "plug" comes in. "Plug" is radio English for "commercial."

Tough, weatherproof corrugated boxes that are acceptable to the Government for specified shipments abroad are being made by the use of Stein-Hall adhesives in which resins are incorporated. So the Stein-Hall Starch Combining Process for manufacturing corrugated board is helping the fight for Victory.

Talk-talk belong me-fellow he-finish – meaning, as you thought . . . "Our story is ended."

*"Pidgin is not 'corrupt' English. Its grammar is simple, but its rules are as firmly fixed as those of the best English" -from MELANESIAN PIDGIN ENGLISH, published by Linguistic Society of America.

If you'd like an original suitable-for-framing print of Brussel-Smith's wood engraving (right) drop a line to Stein, Hall.

The Stein-Hall Process

STEIN, HALL & CO., INC.
285 Madison Ave., New York City

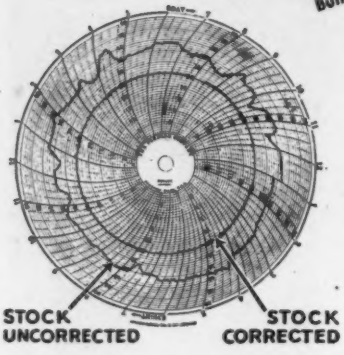
STEIN, HALL MFG. CO.
2841 South Ashland Ave., Chicago

MACHINES OF MERIT

BRAMMER RECORDING CONSISTENCY CONTROL

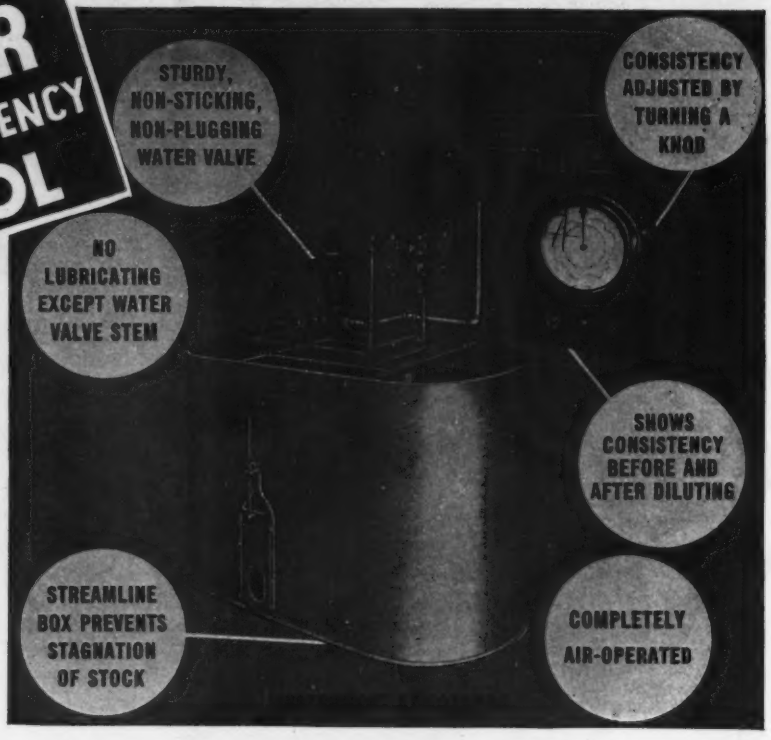
Licensed Under U. S. Patent Numbers: 2,302,326-2,302,327
Other Patents Pending

Write for BRAMMER Bulletin



STOCK UNCORRECTED

STOCK CORRECTED

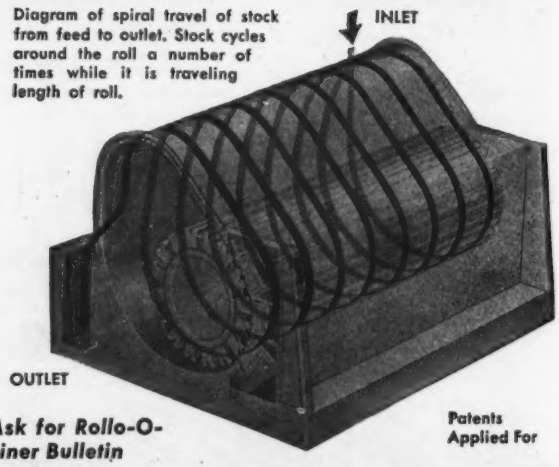

STURDY, NON-STICKING, NON-PLUGGING WATER VALVE
CONSISTENCY ADJUSTED BY TURNING A KNOB
NO LUBRICATING EXCEPT WATER VALVE STEM
SHOWS CONSISTENCY BEFORE AND AFTER DILUTING
STREAMLINE BOX PREVENTS STAGNATION OF STOCK
COMPLETELY AIR-OPERATED

The ROLL-O-FINER

ADVANTAGES: Continuous beating. Positive feeding. High consistencies. Uniform circulation. Controllable pressure. Uniform beating. Efficient treatment. High capacity. Low power. Compact, rugged design. Bedplate accessibility.

MEXICAN-BUILT for delivery if priorities are not procurable. UNITED STATES-BUILT if priorities are procurable.

Diagram of spiral travel of stock from feed to outlet. Stock cycles around the roll a number of times while it is traveling length of roll.



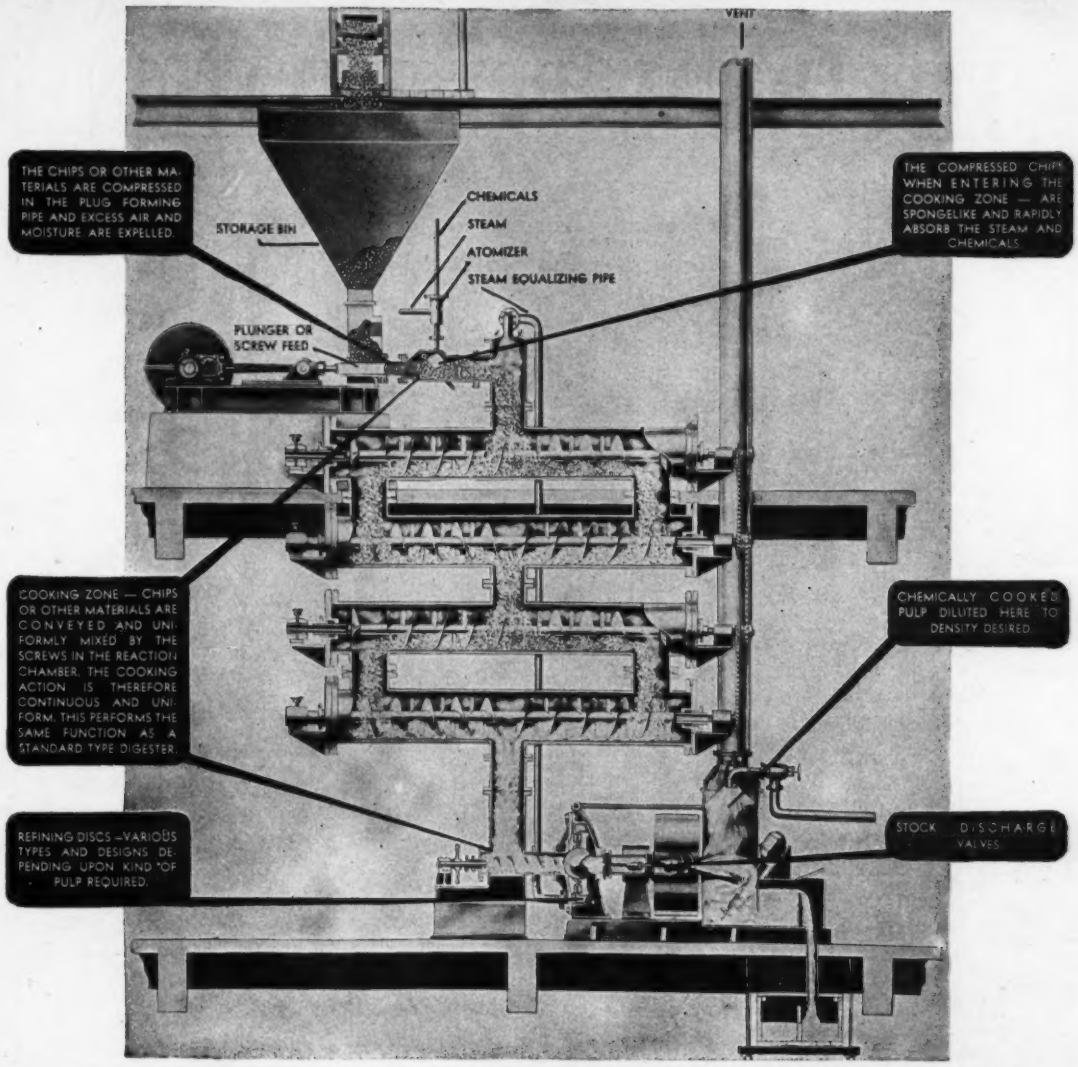
Ask for Rollo-O-Finer Bulletin

Patents Applied For

PAPER and INDUSTRIAL APPLIANCES
Incorporated
122 East 42nd Street, New York, N. Y.

The CHEMIPULPER
combining the ASPLUND DEFIBRATOR *and* B-K REACTION CHAMBER
(PATENTED AND PATENTS PENDING)

THE MODERN PULP MAKER


VENT
THE CHIPS OR OTHER MATERIALS ARE COMPRESSED IN THE PLUG FORMING PIPE AND EXCESS AIR AND MOISTURE ARE EXPELLED.
STORAGE BIN
CHEMICALS
STEAM
ATOMIZER
STEAM EQUALIZING PIPE
PLUNGER OR SCREW FEED
THE COMPRESSED CHIPS WHEN ENTERING THE COOKING ZONE — ARE SPONGELIKE AND RAPIDLY ABSORB THE STEAM AND CHEMICALS.
COOKING ZONE — CHIPS OR OTHER MATERIALS ARE CONVEYED AND UNIFORMLY MIXED BY THE SCREWS IN THE REACTION CHAMBER. THE COOKING ACTION IS THEREFORE CONTINUOUS AND UNIFORM. THIS PERFORMS THE SAME FUNCTION AS A STANDARD TYPE DIGESTER.
CHEMICALLY COOKED PULP DILUTED HERE TO DENSITY DESIRED.
REFINING DISCS—VARIOUS TYPES AND DESIGNS DEPENDING UPON KIND OF PULP REQUIRED.
STOCK DISCHARGE VALVES

WE ARE NOW SOLICITING ORDERS AND MAKING ARRANGEMENTS FOR POST-WAR DELIVERY. . . . To prepare now for the day when peace brings a sudden stop to war production is engaging the minds of many progressive mill executives. Planning ahead for tomorrow's needs is one of the best means of keeping abreast of the times. That is why we are ready now to confer with you regarding your post-war requirements . . . and to arrange for peace-time delivery. . . . . Catalogs upon request.

INVESTIGATE OUR NEW SCREW FEED FOR STRAW PULPS, ETC.

PAPER and INDUSTRIAL APPLIANCES
Incorporated
122 East 42nd Street, New York, N. Y.

COTTRELL PROCESS

of

ELECTRICAL PRECIPITATION

universally recognized as a standard method of removing

DUST, FLY ASH, FUME, MIST & FOG

***from* GASES**

•

30 years of research, development and operating experience throughout the world are incorporated in the

COTTRELL INSTALLATIONS

offered to meet the requirements of any problem by

RESEARCH CORPORATION

405 LEXINGTON AVENUE
NEW YORK CITY

59 EAST VAN BUREN STREET
CHICAGO, ILL.

NOTES ON CONSERVATION OF CRITICAL MATERIALS... No. 7

Keeping every ounce of vitally needed Monel on the job is essential today.

Mills which have scrapped Monel *binding and winding wire* can put it to work in another form as a conservation measure.

The transformation of this discarded wire into gas welding rods permits re-use of valuable Monel for maintenance and repair work, and for the rebuilding of worn pump shafts, impellers, agitator shafts, and the like.

A method for preparing and using discarded Monel wire for gas welding rods is described below.

For full information on gas welding Monel, write for Bulletin T-2, "Welding, Brazing and Soft Soldering of Monel, Nickel and Inconel." The International Nickel Company, Inc., 67 Wall Street, New York, N. Y.

GAS WELDING WITH MONEL RODS

made from discarded binding and winding wire

1. PREPARATION OF MONEL WELDING RODS FROM WIRE . . .

First cut the wire into 3 foot lengths and straighten them. Then clean them as follows:

A. Brush with a wire brush or clean with fine emery cloth.

B. Immerse the wire for about 10 minutes in an earthenware jar filled with warm (120° F.) 5% hydrochloric (muriatic) acid solution. After a rinse in water, the resulting clean wire is ready for use as a gas welding rod.

2. GAS WELDING

A. Flux—Monel Gas Welding Flux should be used. If lack of sufficiently high priority prevents this, any available brazing flux may be used, though the results may not be as satisfactory.

The flux should allow the metal to flow freely and produce a smooth weld...not burned-looking ... and one free of gas holes.

Borax, or fluxes containing large amounts of borax, are not recommended. They tend to produce a Monel weld which may be brittle.

B. Flame—A slightly reducing (carburizing) oxyacetylene flame is recommended, with just a little excess acetylene as indicated in illustration. There should be only a slight feather not larger than 1/16 inch upon the tip of the luminous cone. A soft flame is preferable to a harsh or wild flame.

C. Welding—Monel weld metal should not be puddled. The molten pools of weld metal should be kept quiet with the tip of the luminous flame just touching its surface.

The end of the welding rod always should be kept well within the protecting flame envelope as this prevents oxidation of the rod during welding.

(Write for bulletin T-2, mentioned above, for full welding information.)

3. REBUILDING OF WORN PARTS

Gas welding may be used for rebuilding of pump shafts, impellers and similar equipment, although electric arc welding or metallizing is preferable.

A worn pump shaft may be rebuilt by Monel gas elding as follows:

A. Remove all grease, dirt and corrosion by rough machining or wire brushing of shaft surfaces to be built up.

B. Set up the shaft on rollers or centers so that it may be rotated easily.

C. Warm the area to be built up uniformly as the shaft rotates slowly.

D. Deposit the weld metal circumferentially, as shown in illustration. This will produce a shaft with less distortion than one on which the weld metal has been laid down parallel to the long axis of the shaft. The weld should be about ¼ inch to ⅜ inch wide, but not over ½ inch wide.

E. Machine the built-up area down to desired diameter. No special cutting tool is required. A high speed tool is preferable, but a plain carbon steel tool is satisfactory for the limited amount of machining.

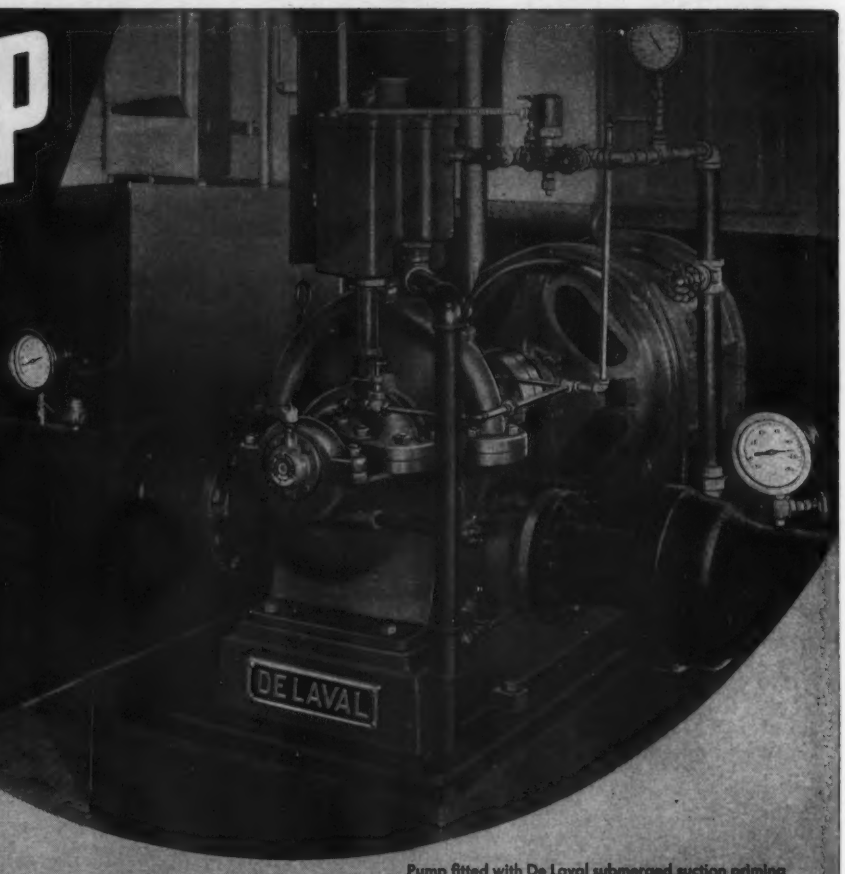
Questions concerning the conservation of equipment by welding will be answered by INCO's TECHNICAL SERVICE. A copy of the article "How to Recondition Worn Pump Shafts and Rods," will be sent on request.

INCO NICKEL ALLOYS

MONEL • "K" MONEL • "S" MONEL • "R" MONEL • "KR" MONEL • INCONEL • "Z" NICKEL • NICKEL

Sheet... Strip... Rod... Tubing... Wire... Castings

PUMP comes RIGHT back!



Pump fitted with De Laval submerged suction priming system; 1100 g. p. m. against 245 ft. at 1750 r. p. m.

If the three-quarter-inch corporation cock on the suction pipe of the pump illustrated above is opened wide, delivery of water ceases, but is resumed again within one minute after the cock is closed, the pump being at once reprimed by the

DE LAVAL *SUBMERGED SUCTION* PRIMING SYSTEM

Were the air inleakage too great for the priming system to handle, the pump would automatically be shut down and could not be started again until the fault had been corrected.

With the De Laval Priming System the pump cannot be started unprimed.

Danger of surges or water-hammer reaching the pump casing is eliminated or minimized.

The pumping unit can be started or stopped at any time, from a remote control point if desired.

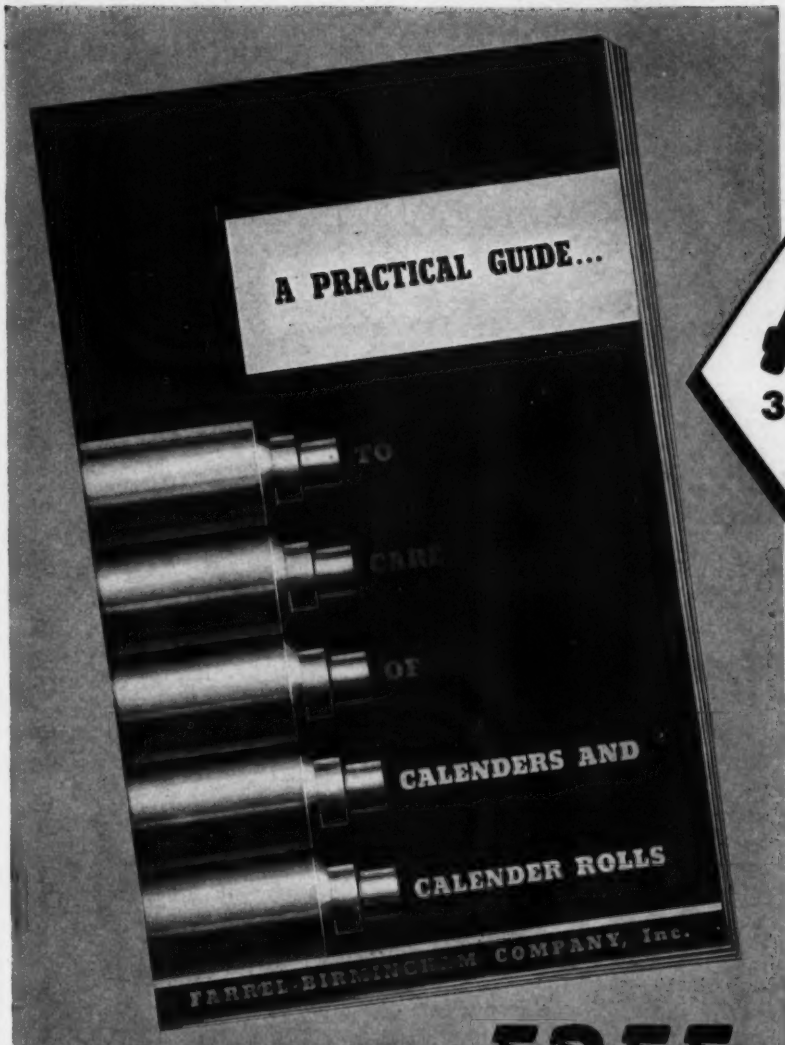
Proper adjustment of packing glands is simplified, as pressure is not admitted to the pump casing and suction line.

Ask for Publication P-3224.

HYDRAULIC INSTITUTE U.S.A. MEMBER

DE LAVAL *Steam Turbine Co.*
TRENTON, N. J.

MANUFACTURERS OF TURBINES - STEAM, HYDRAULIC, PUMPS - CENTRIFUGAL, PROPELLER, ROTARY, DISPLACEMENT, MOTOR-MOUNTED, MIXED-FLOW, CLOGLESS, SELF-PRIMING, CENTRIFUGAL BLOWERS and COMPRESSORS, GEARS - WORM, HELICAL and FLEXIBLE COUPLINGS



FOR MEN WHO WANT THEIR CALENDERS TO OUTLAST HITLER

A NEW 32-PAGE BOOKLET

Just off the Press!

This fact-filled booklet tells how to recognize first signs of trouble in calender stacks and calender rolls . . . discusses common-sense precautions and accepted cures . . . gives many helpful hints on roll grinding . . . and outlines proper lubrication procedures. Includes many informative drawings as well as diagrams and lubrication charts. Contains no advertising.

WRITE FOR FREE COPY TODAY

Every superintendent, maintenance man and roll grinder operator should have a copy. To get yours, simply fill out the coupon and drop it in the mail. There is no charge, and you won't be obligated in any way.

CONTENTS

The Calender Stack.
Chilled-Iron Calender Rolls.
Regular Inspection is very Important.
Roll Troubles, Cures and Precautions—Running a Calender Without Sheet, Marked Rolls, Chatter and Ripples, Pitting or Rusting, Importance of Correct Crown Shape, Doctor Scoring, Creased Paper, Effect of Hot Bearings on Rolls.
Grinding Calender Rolls—The Art of Grinding, Setting-up the Roll in the Grinder, Traverse Speed, Work Speed and Wheel Speed, Selecting the Wheel, Wheel Infeed, Coolant, Crowning the Rolls, Determining the Accuracy of Roll Shape.
Lubrication of Calenders and Grinders.

FARREL-BIRMINGHAM CO., Inc.
ANSONIA, CONN. - Dept. 1010

Please send me a copy of your new booklet on the care of calenders and calender rolls.

Name.....

Title.....

Company.....

Address.....

City..... *State*.....

FARREL-BIRMINGHAM COMPANY, Inc.

Ansonia, Conn. — Branch Offices: New York · Buffalo · Pittsburgh · Akron · Los Angeles

Have you heard about our by-product?

It's weightless. It's invisible. It has no formula or properties. But it's precious, just the same.

Call it "know how"... the valuable by-product accumulated through more than half a century's experience in half a hundred industries. Scores of manufacturing problems . . . in every field from soap to glass, textiles to war gas . . . have sharpened the skill and widened the scope which make up Wyandotte "know how" today.

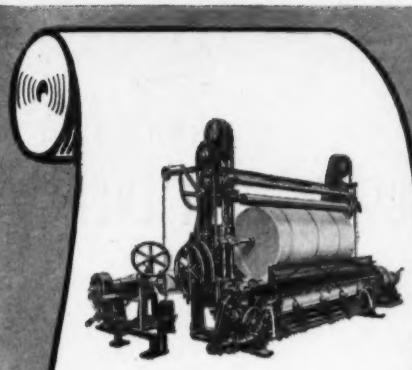
In war or in peace, there have been no priorities on this "by-product." Though we are busily at work with urgent victory orders, our technical assistance and copious background in the handling of basic chemicals are always available to serve you.

Tomorrow, with the return of peace, Wyandotte facilities as well as "know how" will be available in even greater abundance . . . working with you toward a new and better world.

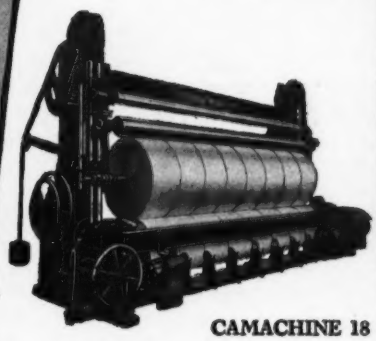
Wyandotte Chemicals Corporation consolidates the resources and facilities of Michigan Alkali Company and The J. B. Ford Company to better serve the nation's war and post-war needs.

WYANDOTTE CHEMICALS CORPORATION • MICHIGAN ALKALI DIVISION • WYANDOTTE, MICHIGAN

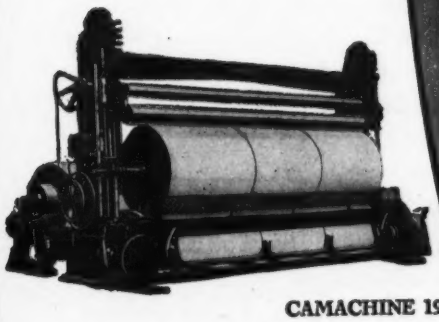
SODA ASH • CAUSTIC SODA • CHLORINE • BICARBONATE OF SODA • CALCIUM CARBONATE • CALCIUM CHLORIDE • DRY ICE



CAMACHINE 14



CAMACHINE 18



CAMACHINE 19

CAMACHINE 20

YOU furnish the **PRIORITY** *We'll furnish the* **WINDER!**

IN common with practically every other machinery manufacturer, Uncle Sam's business is now our main concern. We want Uncle Sam to be there "fustest with the mostest."

As a consequence, we have had to turn away many a good friend badly in need of a modern winder but without the necessary priority to permit us to manufacture it.

At times, however, the slitting and roll winding operation becomes a bottle-neck in connection with urgent war production. For instance, tons and tons of wood pulp rolls for nitrating purposes are needed to make explosives to blast the Axis. It's a Camachine job.

Spiral wound tubes for powder and ammunition containers are now being manufactured in volume. Tons of board in narrow width rolls to supply the tube winding machines are needed. It's a Camachine job.

Air and oil filters help to keep our planes flying and our motorized equipment rolling. In mechanized warfare, millions of paper filter discs are needed. These discs are stamped out of specially treated paper. Jumbo rolls of the treated paper are slit into strips of the width required and rewound onto rolls ready to feed the die-cutting machines. Converting jumbo rolls of this paper is a Camachine job. One Camachine does it so fast and so well, that it is sufficient to keep 20 die-cutting presses supplied with paper.

Vital war work such as the above warrants priority, that's why we say, "You furnish the priority and we'll furnish the Camachine."

Write for interesting facts and figures on the Camachines illustrated.

CAMERON MACHINE COMPANY
61 POPLAR STREET, BROOKLYN, N. Y.
111 WEST MONROE STREET, CHICAGO

CAMACHINE

MORE COSTLY THAN EVER

MORE IMPORTANT THAN EVER

Now that time, materials and production capacity are all at a premium, microorganisms in a paper mill spell double trouble. Yet, now that it is most needed, supplies of Santobrite, Monsanto's highly effective fungicide and bactericide, are limited.

One possible solution for some mills is to use a chlorine or chloramine antislime treatment supplemented with Santobrite to give more positive protection than either of the other two chemicals alone.

Used alone or in combination with chlorine or chloramine, Santobrite is effective against *both* bacteria and fungi. It is chemically stable, non-volatile, practically odorless. It is supplied in either powder form or in 1-oz. briquettes and no expensive apparatus is required for satisfactory application. Properly handled, its use involves no health hazard to mill operators or users of the mill's products.

For the latest information on whether Santobrite is available for your uses, write, giving full details on (1) the uses for which you require Santobrite and (2) the ultimate consumer of your product in which it is to be used. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, St. Louis, Missouri.

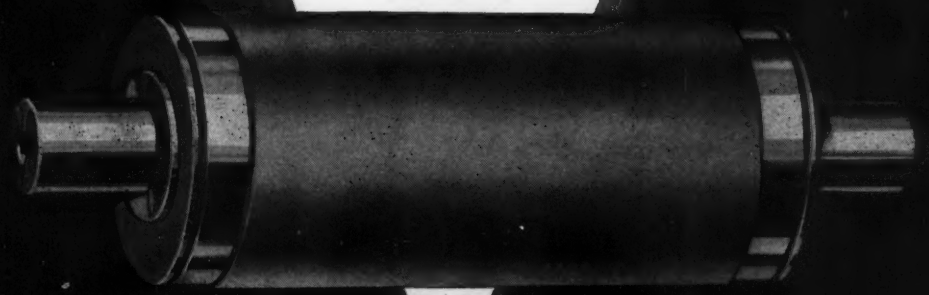
"E" FOR EXCELLENCE—The Army-Navy "E" burgee with two stars, "representing recognition by the Army and the Navy of especially meritorious production of war materials" over a two-year period, flies over Monsanto.

MONSANTO CHEMICALS
SERVING INDUSTRY...WHICH SERVES MANKIND

SANTOBRITE
FOR MICROORGANISM CONTROL

★ ★ ★ PERKINS

There is No Substitute for Perkins Quality



B. F. PERKINS & SON, Inc.
HOLYOKE, MASS., U.S.A.
THE LARGEST MANUFACTURERS OF ROLLS IN THE WORLD

PAPER · · · America's 6th Industry

PLANE PARTS IN PAPER BAGS

(NEWS ITEM: *In a midwest plant, delicate instruments for U. S. fighter planes are being protected by paper bags as they move down the assembly line.*)

Paper bags are playing a unique role in guarding magnetos for America's war planes.

As these intricate plane parts move down the assembly line in a midwest plant, they are protected from dust by paper bags.

Waterproof paper bags are needed in tremendous quantity for the shipment of repair parts for planes, tanks and guns . . . bags that can withstand storage for long periods of time and exposure to any climate.

The Paper Industry is supplying all the paper bags needed by America at war as well as packaging for food, equipment and munitions to our Armed Forces overseas. Puseyjones engineers offer their whole-hearted cooperation to these mills meeting the demands of the war effort.

The improved Puseyjones Winder for all-purpose machines gives the necessary speed-up in the winding operation and meets the commercial demand for large shipping and converting rolls. The latest mechanical improvements, including an individual motor drive for the rider roll and each drum roll, and a time-saving shaft replacement device, simplify operation.

Puseyjones men and production facilities are on war work. In the meantime, we are doing our best to supply replacement parts to keep present equipment operating efficiently. All orders subject to priority conditions of War Production Board.

PLANNING AHEAD? For paper and pulp mill executives looking forward to post war production problems, we will gladly furnish reprints of three informative articles prepared by Puseyjones engineers — "The Post-War Fourdrinier Machine," "Development of Stream-Flow Vat System," "The Flow Spreader." Ask for reprints by name.

THE PUSEY AND JONES CORPORATION

Established 1848. Builders of Paper-Making Machinery

Wilmington, Delaware, U. S. A.

THE SIGN OF TRADE MARK SUPERIOR QUALITY

THE VOICE OF *Democracy*

To many people the voice of Niagara Falls is like the voice of America herself speaking—the voice of a strong, steadfast nation carrying a thunderous message of freedom and opportunity to the world.

Today, like the timeless roar of Niagara, the voice of America sounds strong and clear above the din of war and the shrill notes of false ideologies. America has become, as never before, the nation that offers hope and courage to men and women in slavery. For the ways in which America has grown to greatness are the ways by which other nations may grow and keep their freedom intact. And America is fighting not only for herself but for the millions who seek the same goals. The roar of her factories has sounded the note of Victory, and her ideals are setting the course of progress for generations to come. As we prepare for the new age that will emerge from the war, the responsibility for peacetime leadership will fall on the shoulders of an America that has learned to know her own strength and appreciate the power of her traditions.

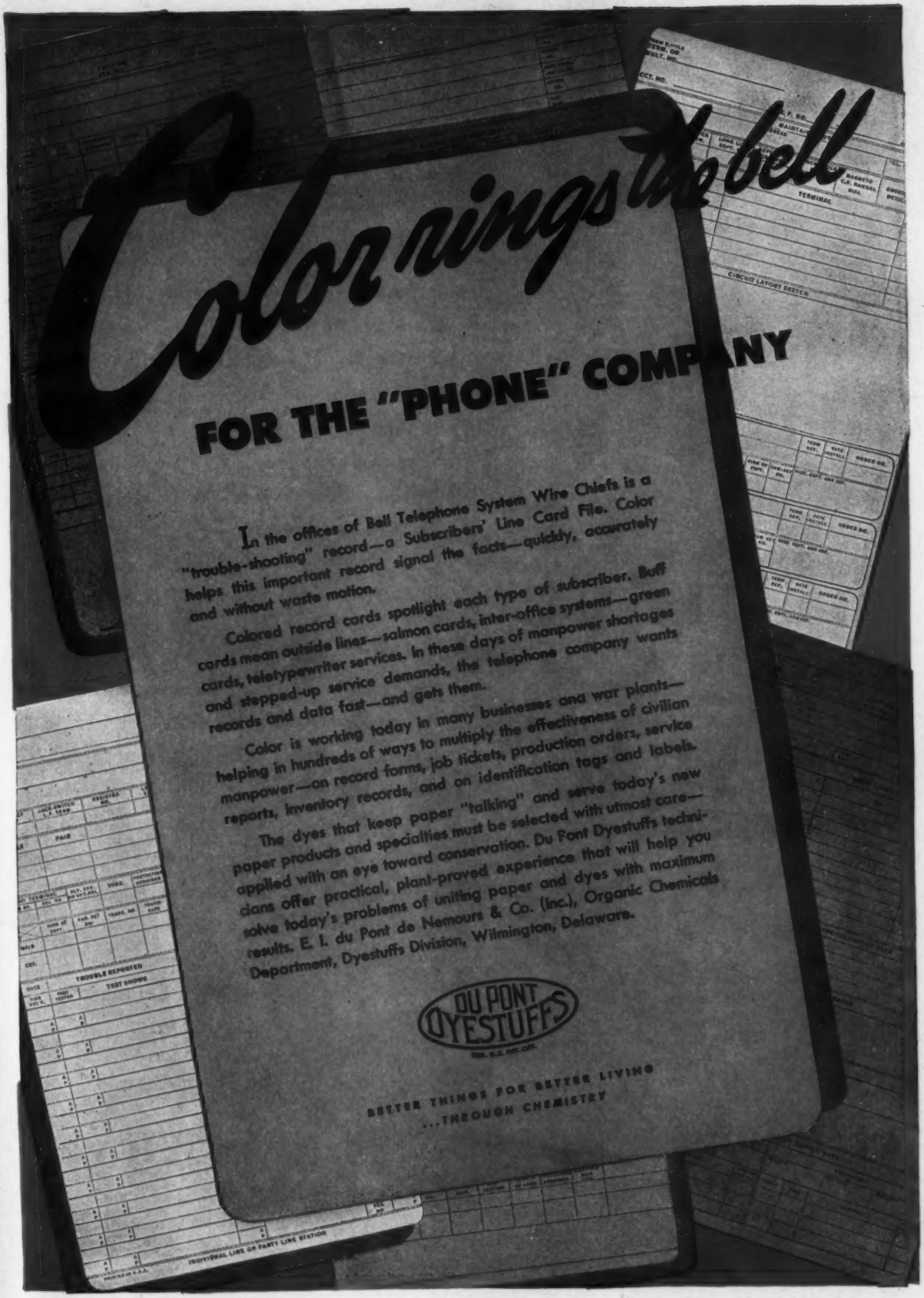
We who work within sight and sound of Niagara Falls are devoting every ounce of our energies and facilities to speeding the flow of chemicals for Victory.

CAUSTIC POTASH · CAUSTIC SODA
PARA · CARBONATE OF POTASH
LIQUID CHLORINE

FROM THE ORIGINAL BY JOE JONES . . . IN NIAGARA ALKALI COMPANY'S COLLECTION OF PAINTINGS OF NIAGARA FALLS

Niagara ALKALI COMPANY
60 EAST 42nd STREET, NEW YORK, N. Y.

An Essential Part Of America's Great Chemical Enterprise


Color rings the bell
FOR THE "PHONE" COMPANY
In the offices of Bell Telephone System Wire Chiefs is a "trouble-shooting" record—a Subscribers' Line Card File. Color helps this important record signal the facts—quickly, accurately and without waste motion.
Colored record cards spotlight each type of subscriber. Buff cards mean outside lines—salmon cards, inter-office systems—green cards, teletypewriter services. In these days of manpower shortages and stepped-up service demands, the telephone company wants records and data fast—and gets them.
Color is working today in many businesses and war plants—helping in hundreds of ways to multiply the effectiveness of civilian manpower—on record forms, job tickets, production orders, service reports, inventory records, and on identification tags and labels.
The dyes that keep paper "talking" and serve today's new paper products and specialties must be selected with utmost care—applied with an eye toward conservation. Du Pont Dyestuffs technicians offer practical, plant-proved experience that will help you solve today's problems of uniting paper and dyes with maximum results. E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Department, Dyestuffs Division, Wilmington, Delaware.
DU PONT DYESTUFFS
REG. U.S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

CRODON PLATING pays

IF YOU CAN'T REPLACE • • • RENEW!

CRODON
'The Chrome Plate'

FULL-TIME emergency operations shorten the normal useful life of machinery and equipment. Necessary replacements are frequently unavailable, but essential production MUST continue without interruption.

Industrial CRODON-plating provides new-equipment performance. It avoids the use of scarce metals for *entire* machines or parts. It shortens replacement time and reduces production losses due to worn-out equipment. There is substantial economy in restoring worn parts by industrial chrome plating, as well as a material saving in the consumption of strategic metals. CRODON is useful in rebuilding parts that are undersized due to errors in machining.

CRODON plate re-surfaces worn parts with an extremely hard, smooth, long-wearing, corrosion-resistant protective coating. It may be finished to exact tolerances. It is available to essential industries as a proven method of repair and maintenance—more than ever useful on new equipment for dependable operation. Behind every CRODON application are the resources, experience and reputation of America's oldest and largest industrial chromium plating organization.

CHROMIUM CORPORATION OF AMERICA

EXECUTIVE OFFICES—120 BROADWAY, NEW YORK

346 Huntingdon Avenue
Waterbury, Conn.

1760 Lakeview Road
Cleveland, Ohio

4645 West Chicago Avenue
Chicago, Ill.

WORTHINGTON

EQUIPMENT FOR THE PAPER AND PULP INDUSTRY

★

A COMPLETE LINE OF PUMPS FOR:

General water supply
Waste disposal
Sump and general drainage
Fire protection
Suction-box or roll vacuum
White water
Pulp grinder pressure water
Stock handling
Acids, caustics and other chemicals
Liquors handling . . . for sulphite, sulphate (kraft), and soda processes
Bleach solutions
Air conditioning and refrigeration

STEAM POWER PLANT EQUIPMENT:

STEAM TURBINES
BOILER FEED PUMPS
CONDENSERS
STEAM-JET AIR EJECTORS
HOTWELL AND CONDENSATE PUMPS
STEAM HEATING VACUUM PUMPS
FEEDWATER HEATERS (deaerating and non-deaerating)
WATER SOFTENERS
WATER METERS

OTHER EQUIPMENT:

DIESEL AND GAS ENGINES
CONVERTIBLE GAS-DIESEL ENGINES
COMPRESSORS (air and gas)
WET AND DRY VACUUM PUMPS
V-BELT DRIVES
REFRIGERATION AND AIR CONDITIONING EQUIPMENT

★

IC3-18

WORTHINGTON PUMP AND MACHINERY CORPORATION
General Offices: HARRISON, NEW JERSEY
Offices and Representatives in all Principal Cities

Man and Machine

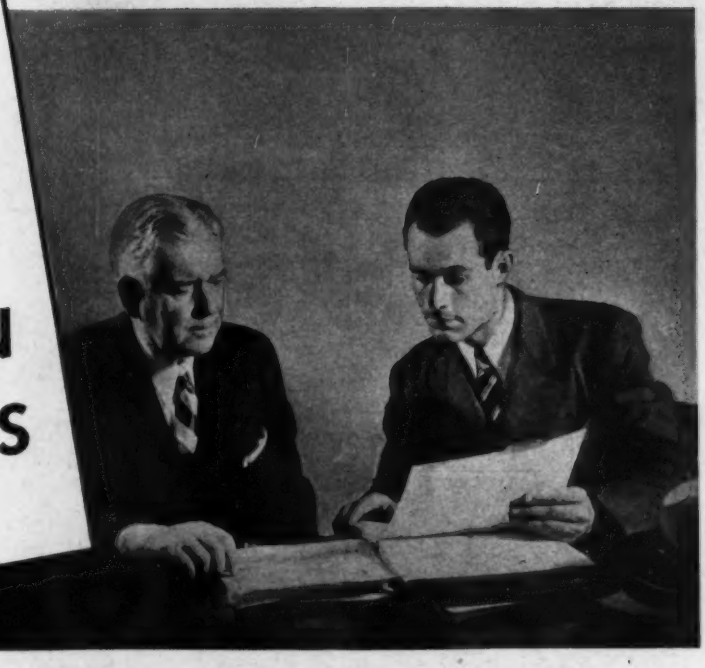
ONE complements the other; and what a job the two are doing every day in backing up the boys in our armed forces by producing the equipment and armament that they need.

Skilled men imbued with the American spirit of democracy and trained in plants where precision standards are the highest are proving that they and their machines can give what it takes.

Bagley and Sewall, with an eye towards the future, is ever mindful that one day their customers will again expect to find available the same skill and precision in paper making equipment that they came to recognize and demand.

THE BAGLEY & SEWALL COMPANY • WATERTOWN, NEW YORK

Consult OLIVER UNITED'S PULP FILTRATION SPECIALISTS



Plans You Make TODAY Mean Faster POST-PRIORITY MODERNIZATION

MAYBE you can't buy filters today—few outside the real war-goods industries* can. But there is nothing to stop you from planning, even to the type and size of equipment, for the modernization program you will want to put into effect immediately priorities are lifted.

There's nothing to prevent you from planning and nothing to prevent us helping you to lay out plans built around a modern Oliver *brown stock or bleach washer, a new decker, saveall, lime-mud filter, or board-forming machine.*

Let Oliver United men serve you *now* in making plans. Let Oliver equipment serve you just as soon as you can buy it.

* Speaking of war-goods industries, would you like to receive LITERATURE telling of our work in other plants directly connected with the war effort? Ask for Folder No. 100.

OLIVER UNITED FILTERS INC.

New York, N. Y.
33 West 42nd St.

San Francisco
California

Chicago, Ill.
221 N. LaSalle Street

Oakland, Calif.
2900 Glascock Street

Factories: Hazleton, Pa. — Oakland, Calif. — Orillia, Ont., Canada — Melbourne, Australia

6-00F-3

IN WAR A

INDUSTRY has responded nobly to Uncle Sam's SOS.
Here at Nashua, IMPCO is working diligently and relentlessly to supply the boys with the where-with-all for a smashing VICTORY.

IMPCO

IMPROVED
PAPER MACHINERY CORPORATION
NASHUA, NEW HAMPSHIRE

IMPCO

IM

FOR VICTORY
BUY
UNITED STATES WAR SAVINGS BONDS STAMPS

A name to

BEFORE INVENTIVE GENIUS WAS APPLIED TO PAPER MAKING

Ton production wasn't in the mind of the paper maker whose 1778 workshop made paper sheet by sheet. He was an artist, surrounded by apprentices and a few tools of his trade. But, one day inventive genius was applied to his art. Machines were developed; the art became an industry. Tons were produced where only sheets were made before. The felt layers used to remove water from the sheets, too, gave way to production felts. Since then progress in felt making has kept pace with progress in paper making. Appleton Felts have since 1890 each year met all requirements of paper mill production—today preferred by mills everywhere.

●

This advertisement is a continuation of a series started in 1940 depicting early history of paper making.

APPLETON WOOLEN MILLS, APPLETON, WIS.

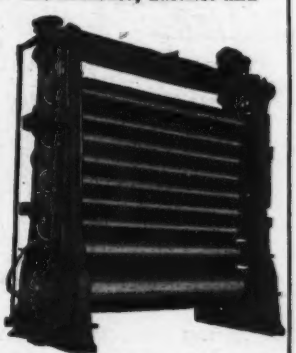
Choice of the Leading Paper Mills

LOBDELL ROLL GRINDERS are the "last word" in roll grinding. They are compact, convenient and accurate and embody four exclusively Lobdell features. 1. The automatic crowning device, no gears, cams or formers to change, one simple setting of micrometer scale to table for any predetermined crown. 2. Provision for maintaining perfect alignment of bed. 3. V-Belt wheel drive with increased power, rigidity and convenience. 4. New automatic wheel feed.

MICROMETER ROLL CALIPER

Indispensable in keeping check on regrinding of rolls. Extremely accurate, light in weight and easily adjusted to varying roll diameters 7″ to 30″, 8″ to 36″ and 9″ to 42″.

LOBDELL CALENDER STACKS are accurate, durable and easily operated. Roll lifts, controlled from the floor, may be operated by electric motor, hydraulic pressure or hand ratchet. Up-to-minute automatic lubrication or anti-friction bearings as service indicates.



LOBDELL "PURALOY" ROLLS are made of an exclusive, LOBDELL developed alloy having extra hardness and corrosion resistance to meet the extra severe service of water finish, etc. Manufacture of "PURALOY" ROLLS is restricted for the duration of the war.

LOBDELL

COMPANY

Wilmington, Delaware

108 Years in Business

SPRACO BATTERY SPRAY MOISTENING EQUIPMENT

For the application of moisture in the form of coarse spray, fine spray or mist of uniform density across any desired width of web, with means for varying the amount of moisture sprayed, at the same time maintaining uniform distribution.

Used extensively for the elimination of production difficulties due to uncontrolled moisture content. Improves finish, increases fibre strength and flexibility, eliminates static, prevents warp and waste. Each installation designed to meet operating requirements for any specified width, weight and speed of paper.

SPRACO NOZZLES

We also manufacture a complete line of nozzles for washing screens, applying sizing solutions, beating down foam in head boxes, and many other specialized processes.
Our engineers are always available for consultation on problems of spray application or processing.

SPRAY ENGINEERING CO., 118 Central St., Somerville, Mass.

GET RID OF THAT SLIME THE QUICK-LOW COST WAY!

Of course you can use manual cleaning methods for slime control. But, it takes too much time—and all you get is a degree of control. This spring you can get slime removal—instead of control if you use.

MAGNUS SLIME REMOVER

It reaches places you never could touch with brushing, unless you dismantled every machine in the system. It loosens deposits and puts them into a state where they completely wash away in rinse water. Moreover, it kills bacteria and spores which tend to increase slime growth in the system.

Magnus Slime Remover is no novelty in the paper field. It has been doing a thorough, economical job of slime removal for many years.

Right now is slime time. Tackle your slime job this year with the safe, sure method afforded by this well-tested compound.

KEEPING YOUR FELTS CONDITIONED

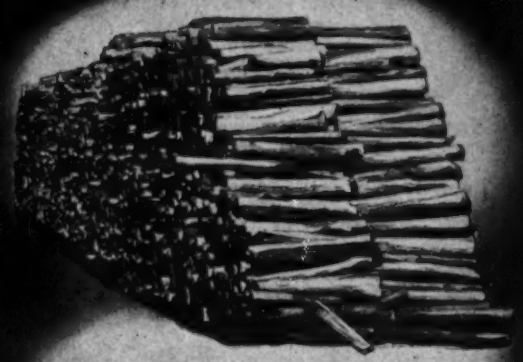
Now, more than ever, is the time to take good care of paper mill felts. Ask us to tell you what Magnus Feltex can do to add life to your felts and maintain production rates in the bargain.

MAGNUS CHEMICAL COMPANY
24 South Avenue — Garwood, N. J.

Service Representatives in all principal cities

Magnus PAPER MILL CLEANERS

UNIFORM RESULTS
FROM
Variable Raw Materials



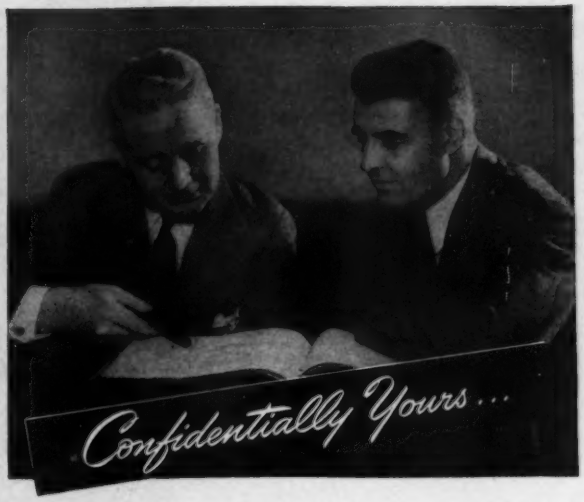
Pulp wood varies, forest, earth and streams change with the seasons... but your customer expects uniform color in paper stock, lot after lot.

Helping you to keep color constant by compensating for all such variations with adjustments in dye formulas is part of National Technical Service.

We invite your requests for assistance on specific problems.

National Paper Dyes

NATIONAL ANILINE DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET NEW YORK, N. Y.
BOSTON PHILADELPHIA GREENSBORO CHATTANOOGA
PROVIDENCE SAN FRANCISCO ATLANTA PORTLAND, ORE.
CHICAGO CHARLOTTE NEW ORLEANS TORONTO



WHEN a Solvay Technical Service man receives an invitation from you, perhaps so that you may obtain an outside viewpoint on a problem which has proven particularly difficult to solve, it is sometimes necessary to supply him with information of a confidential nature.

...That is a point on which some customers might hesitate to avail themselves of Solvay Technical Service. Please be assured that any information that you may impart to a Solvay Technical Service man remains in strictest confidence. It is used only insofar as it is necessary to help solve your particular problem. When consultations are concluded, your problem is a closed book with Solvay Technical Service.

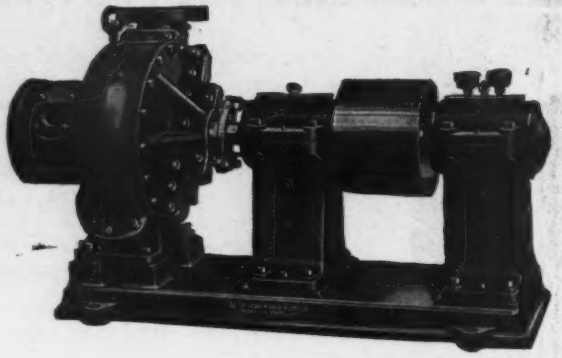
You will find on the staff of Solvay Technical and Engineering Service men of the highest type who have been especially trained to cope with your problems as they pertain to alkalies and related products. They are at your service. Please call on them without hesitation.

SOLVAY SALES CORPORATION
Alkalies and Chemical Products Manufactured by The Solvay Process Company
40 RECTOR STREET NEW YORK, N. Y.

BRANCH SALES OFFICES:
Boston • Charlotte • Chicago • Cincinnati • Cleveland • Detroit
New Orleans • New York • Philadelphia • Pittsburgh • St. Louis • Syracuse

SOLVAY
TRADE MARK REG. U. S. PAT. OFF.
TECHNICAL SERVICE

Stock Pumps *individually designed* to meet *your* operating conditions



★ Actually, there is no such thing as a "stock" FREDERICK Stock Pump . . . there is only a basic design. And, when we engineer your pump, we take into account the nature of the stock, its consistency, the piping layout, and all other factors that enter into your operating conditions . . . and build the pump accordingly.

Consequently, FREDERICK pumps can be GUARANTEED to meet the operating conditions for which they are sold!

You'll find a FREDERICK pump is *the* unit for low cost, high efficiency pumping—sound in construction—dependable in operation—proved by over a quarter century's use by leading paper mills.

FREDERICK PUMPS

Ask about them —

No obligation —

Just write —

The FREDERICK IRON & STEEL CO.
Frederick, Maryland

Meisel Press Mfg. Co.

Printing Presses—Slitters

All Our Products in the War Effort

942 Dorchester Ave. — Boston, Mass.

PHOTOVOLT

Photoelectric
REFLECTION METER

for measurement of
Brightness
Opacity
Gloss
Color

A universal instrument for photoelectric measurements in the paper industry. Built for precision, simple to operate.

Write for literature.

95 Madison Ave. **PHOTOVOLT CORP.** New York City

For High-Speed, Dependable
PAPER CONVERTING MACHINES
contact
POTDEVIN

Paper Bag Machines, Aniline & Oil-Ink Presses, Waxing, Gluing, Varnishing, Laminating Machines.

POTDEVIN MACHINE CO
1225 38th ST BROOKLYN, N.Y.

POTDEVIN

AMES Thickness Measure No. 25

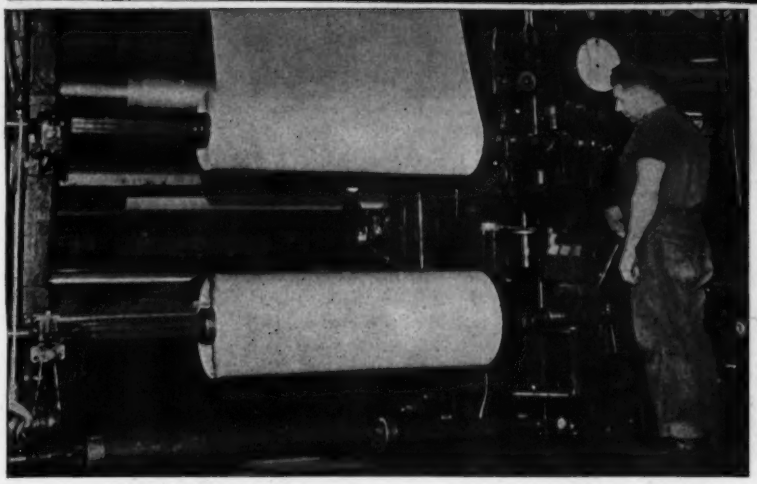
This compactly designed instrument (the only one of its kind made) meets every demand for a neat pocket gauge to measure thicknesses with speed and accuracy.

$10.50
FULLY GUARANTEED

B. C. AMES CO.
WALTHAM, MASS.

Speed Your Production

NORWOOD CALENDERS HAVE MANY MODERN FEATURES THAT SPEED PRODUCTION



YOU can speed production with Norwood Calenders because they have many modern features which permit higher running speeds and prevent "broke" and mechanical breakdowns which would otherwise delay production. They have a new power-saving drive, a continuous oiling system, adjustable roll journal boxes, and many other features. Investigate.

Send For Engineering Data Units: Helpful Data Units are waiting for you. Write today for your set.

Get a Good Start And a Good Finish With
NORWOOD
WATER FILTERS AND PAPER FINISHING MACHINERY

The Norwood Engineering Company
17 No. Maple St., Florence, Mass.

Now is the Time to Plan Ahead

Except for the maintenance needs of our customers, our Plant continues all out on War Production.

Each day, however, brings the end of the War nearer at an accelerated pace. Now is the time to plan ahead for the transition.

Many are doing this already. We are at your service also to furnish estimates and to discuss shop scheduling.

Montague Machine Company

Turners Falls, Mass.

West Virginia Pulp and Paper Company

230 Park Ave.
New York

35 East Wacker Drive
Chicago

Public Ledger Building
Philadelphia, Pa.

503 Market St.
San Francisco, Cal.

Manufacturers of

ENGLISH FINISH SUPERCALENDERED MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Mimeograph, Ledger, Eggshell, Cover and Music Papers, Index Bristol, Post Card and Label Papers

HIGH GRADE COATED BOOK

• • • •

KRAFT WRAPPING AND KRAFT ENVELOPE
KRAFT LINER BOARD
BLEACHED SULPHITE AND SODA PULP
BLEACHED AND UNBLEACHED KRAFT PULP

MILLS:

Mechanicville, New York
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Charleston, South Carolina

This ROGERS CC-3 Grinder Will Help You Get LONGER LIFE

from

Top and Bottom Slitters, Double Bevel Slitters, Splitting Knives, Circular Knives, Circle and Ring Shear Knives

It is important to get maximum *life* from knives. This easily operated CC-3 enables you to have a continuous supply of *keenest cutting edges* . . . with *minimum* removal of metal. 2" to 20" diameter capacity.

Send for Circular CC-3.

Samuel C.
ROGERS
and Company
202 Dutton Avenue
BUFFALO, N. Y.

Type CC-3 Rogers
Circular Knife Grinder

ROGERS KNIFE GRINDERS
PRECISION QUALITY SINCE 1887

PRICE & PIERCE »»»»»»»ltd•

Wood Pulp & Paper Agents

60 East 42 Street
New York, N. Y.

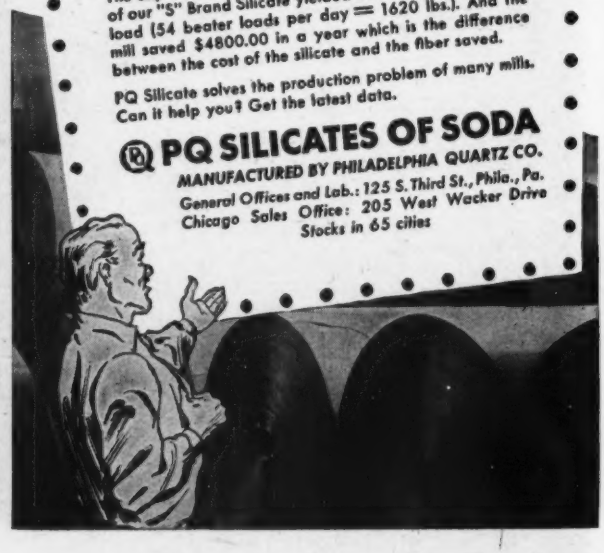
More paper per beater

Would a step-up in yield per beater be an advantage in your mill? PQ Silicate of Soda is helping a number of mills in this important way. PQ Silicate used in the beater improves fiber retention; in addition, it produces a better finish by laying the short fibers flat.

The experience of a large eastern mill is typical—60 lbs. of our "S" Brand Silicate yielded 30 lbs. more paper per load (54 beater loads per day = 1620 lbs.). And the mill saved $4800.00 in a year which is the difference between the cost of the silicate and the fiber saved.

PQ Silicate solves the production problem of many mills. Can it help you? Get the latest data.

PQ SILICATES OF SODA
MANUFACTURED BY PHILADELPHIA QUARTZ CO.
General Offices and Lab.: 125 S. Third St., Phila., Pa.
Chicago Sales Office: 205 West Wacker Drive
Stocks in 65 cities



TIMBER
In The War Effort

TIMBER is one of the vitally important raw materials necessary in the conduct of war.

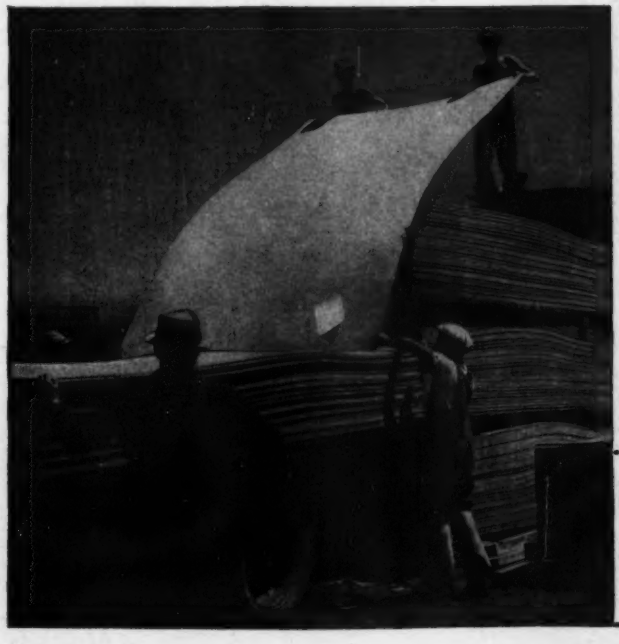
THROUGH its forestry program the Seaboard Air Line Railway is promoting timber growing in the South in accordance with the concepts of sound forestry practices.

THIS HELPS not only to insure an adequate supply for our war needs but also to build up our forests for the future benefit of our wood-using industries.

INDUSTRIAL DEPARTMENT
SEABOARD
AIR LINE RAILWAY

Warren T. White
General Industrial Agent
Norfolk, Va.

Thousands of feet of Insulation Board...
and every foot NOPCO-WEATHERPROOFED!



■ The Homasote Company of Trenton, N. J., leading manufacturers of insulation board, employ every modern facility to improve still further the quality of their already dependable product.

For example, every foot of Homasote Insulation Board is weatherproofed to the point where it is practically immune to the deteriorating effects of prolonged outdoor exposure.

The Homasote Company is a satisfied user of Nopco 2251 Wax Emulsifier.

Advantages of Weatherproofing with Nopco 2251 Wax Emulsifier.

Large scale users of wax emulsifiers for weatherproofing purposes find it economical to make their own with Nopco 2251 Wax Emulsifier. For Nopco 2251, being a concentrate, saves valuable car space and reduces shipping charges. And Nopco does a thorough *wax-waterproofing* job.

If you are faced with a wax-waterproofing problem in your product, mail coupon below.

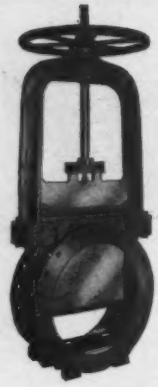
NATIONAL OIL PRODUCTS CO., Harrison, N. J.

Please send technical data on use of Nopco 2251 Wax Emulsifier. PTJ-6

Name.....

Company.....

Address..... City.....



RECORD PAPER & PULP STOCK VALVES, "BONNETLESS SELF CLEARING"---"RESIDUE POCKETLESS TYPE"

METALS — I.B.B.M., all iron, bronze or stainless steels, body parts plain or rubber lined.

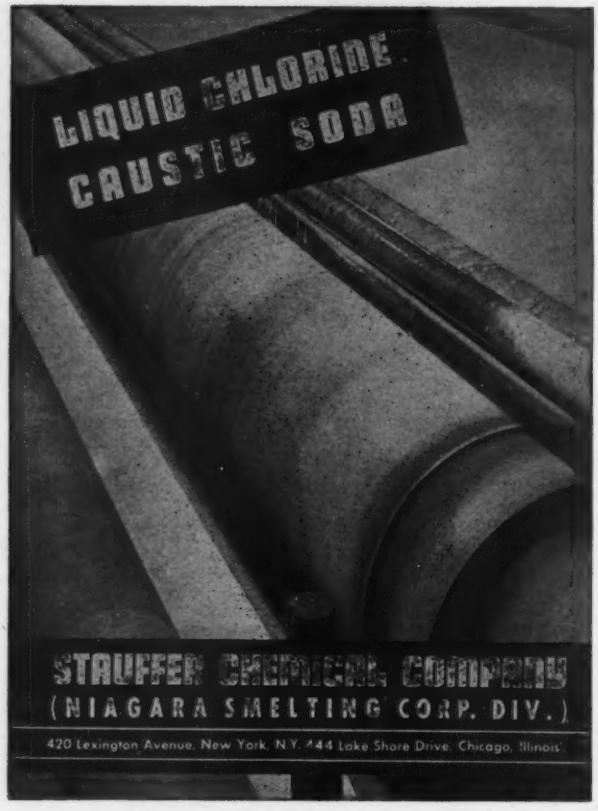
The photo of 2½" Fig. 241 I. B. B. M. valve while illustrating the gate bottom wedge system for forced gate seating and "GUILLOTINE" edge for shearing fibre at seat also shows the packing box and yoke as separate units. Both adjustable.

- The **"FAST THREADED"** screw stem and ball bearing speeds valve operation.
- The packing box is extra deep, is adjustable and provided with specialized lubricated packings and special type gland and compression bolts.
- The yoke mountings are such that yokes for various methods of gate operation are interchangeable.
- Replaceable gate edge shoes are used in valves 10" and larger. These shoes are of special value when valves are installed stem and pipe horizontal.

"RECORD PRODUCTS EXTENSIVELY USED IN DEFENSE PROJECTS."

RECORD FOUNDRY & MACHINE COMPANY

LIVERMORE FALLS, MAINE, U. S. A.


LIQUID CHLORINE
CAUSTIC SODA
STAUFFER CHEMICAL COMPANY
(NIAGARA SMELTING CORP. DIV.)
420 Lexington Avenue, New York, N.Y. 444 Lake Shore Drive, Chicago, Illinois

SOMETHING NEW FOR THE BOILER ROOM

Here is a simple Combustion Control equipment especially intended to give economical and dependable regulation to power plants which do not require the central-station type of control. This equipment is all-electrical; basically the same simple L&N Control used for large industrial furnaces. It is sensitive and flexible; low in first cost and easy to install.

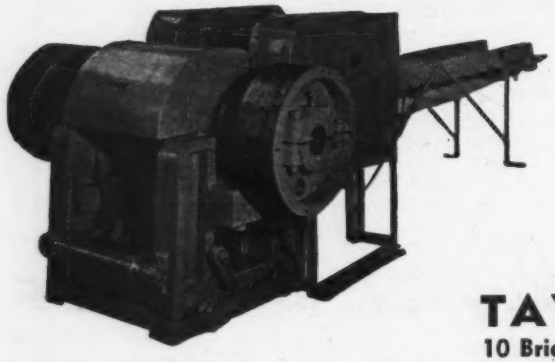
A Catalog will be sent, when ready, to all who request it. In the meantime, if you have a war-production need for Combustion Control in any plant, large or small, just outline your problem and we will promptly send specific facts.

Jrl Ad N-01P-163(2)

LEEDS & NORTHRUP COMPANY, 4967 Stenton Ave., Phila.-44, Pa.

LEEDS & NORTHRUP

MEASURING INSTRUMENTS · TELEMETERS · AUTOMATIC CONTROLS · HEAT-TREATING FURNACES



FOR MAXIMUM PRODUCTION

You Can Rely on This

No. 11 MULTIPLEX CUTTER

Rated to give a constant flow of finely cut rags, at the rate of 3 tons an hour.

One of several types that fill every requirement in paper mills of all kinds.

Let Us Know Your Cutting Problems

TAYLOR-STILES & COMPANY

10 Bridge Street, Riegelsville, N. J.

At Your Service...

You are invited to use Our Technical Service on

STARCHES
GUMS
SYRUPS
DEXTRINES

•

STARCH
FOR ENZYME CONVERSION

AMIJEL
FOR THE BEATERS

LAM-O-DEX
FOR LAMINATING

CORAGUM
FOR CORRUGATING

WRITE...

Corn Products Sales Co.
17 BATTERY PLACE
NEW YORK CITY

A
New Star Shines
at
Hooker

Under Secretary of War Robert P. Patterson has just informed the men and women employees at Hooker that they have won the privilege of adding a coveted White Star to the Army-Navy "E" Production Award Flag which now flies above their plant.

This White Star is awarded for meritorious services on the production front. In the words of Secretary Patterson it is:

"The symbol of appreciation from our Armed Forces for your continued and determined effort and patriotism."

It is with great pride and determination that the men and women of this company accept this honor. Pride in the accomplishments already achieved and determination that these accomplishments will be surpassed.

HOOKER ELECTROCHEMICAL CO.
NIAGARA FALLS, N. Y.
New York, N. Y. Tacoma, Wash. Wilmington, Calif.

HOOKER CHEMICALS

4253

He's Making a Photomicrographic History of the War

THE photomicrographer in his laboratory, whether in an industrial plant, in some distant United Nations base of operations or in a great research institution . . . whether his work is dedicated to war production or to the fight against disease . . . is today documenting each forward step that science takes.

Vital in war production and an essential heritage to those who will live in the days of peace to come, photomicrography preserves important findings that could otherwise so easily be lost. Photomicrography makes wartime experience in metallography, surgery, prophylaxis, chemistry . . . in all fields . . . available for peacetime applications.

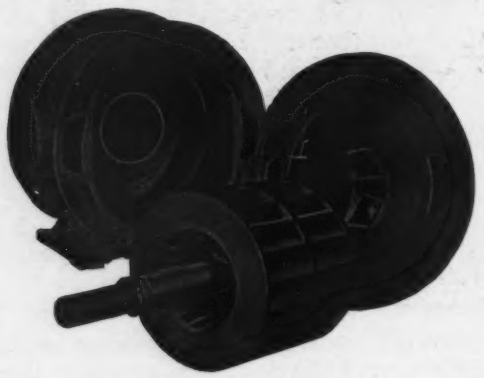
Here is another field in which Bausch & Lomb instruments, developed in the interests of peacetime scientific and industrial research, go to war. Here is still further proof that this is a war of precision, where the optical instruments that insure accuracy in expanded production take an important place beside those other B&L Instruments used as fighting tools by our fighting men.

For work essential to Victory—B&L Instruments are available on priorities.

BAUSCH & LOMB

OPTICAL COMPANY • ESTABLISHED 1853

SIMPLICITY



NASH VACUUM PUMPS HAVE ONE MOVING PART

Operating advantages made possible by the Nash principle, and present in no other type of vacuum pump, permit a new level of operating economy. Nash Vacuum Pumps have but one moving part, a rotor cast in one piece, and revolving without metallic contact. There are no valves, no pistons or sliding vanes, no internal parts requiring wear adjustment or lubrication.

NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

ZOPAQUE RG

Pure TiO_2

This grade of TiO_2 shows highest developments of aqueous dispersion and suspension yet attained.

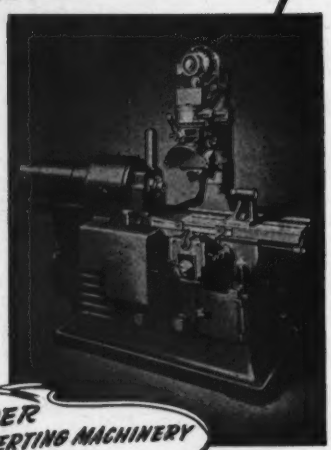
Now available in any quantity without priority, but we will appreciate extension of any priorities available when ordering.

CONSTANT VIGILANCE QUALITY ALWAYS

Sole Selling Agents:
The Chemical & Pigment Company
Baltimore, Md. • Collinsville, Ill. • Oakland, Calif.
Manufactured by
American Zirconium Corporation
Baltimore, Maryland

NOW MACHINE TOOLS Afterwards

Automatic Hob sharpening machine built to design and specifications of Barber - Colman Company, Rockford, Illinois.

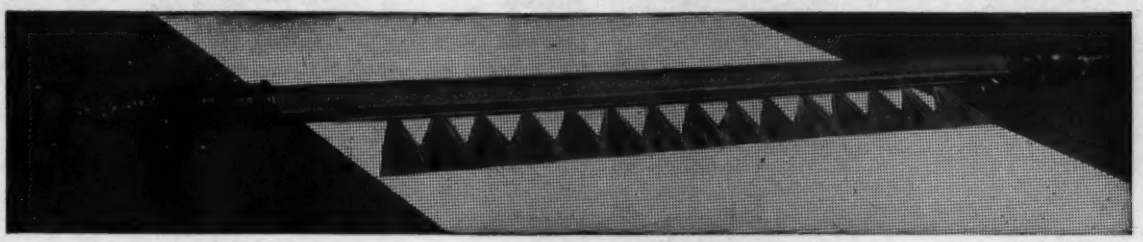


PAPER CONVERTING MACHINERY

While now Paper Converting Machines can only be made by special permission of the WPB, our engineering staff, and plant facilities are devoted to making tools and equipment that will aid our fighting forces. Much of this is precision work of a high degree. After we beat the Axis, we will be better equipped than ever before to meet requirements for paper converting machinery. Until that day, we shall do everything possible toward achievement of ultimate Victory.

PAPER CONVERTING MACHINE CO.
GREEN BAY, WISCONSIN
Manufacturers of paper converting machinery for all purposes

For SHOWER PIPES—*Call Headquarters!!*



Bulletin 134 **SANDUSKY FOUNDRY & MACHINE CO.** Sandusky, Ohio

COLORS

for

Board and *Paper*

Green

CHROMIUM OXIDES

Black Brown Red Yellow

IRON OXIDES

LAMP BLACK

TALC

UMBERS

VENETIAN REDS

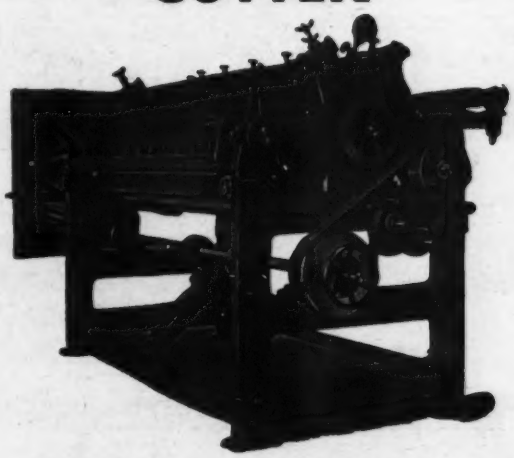
YELLOW OCHRES

C. K. WILLIAMS & CO.

Easton, Pa.

MODEL 28

ROLLER BEARING CUTTER



HAMBLET MACHINE CO.

LAWRENCE, MASS.

MAKERS OF

SINGLE, DUPLEX AND DIAGONAL PAPER CUTTERS
CUTTER KNIVES, PATENT TOP SLITTERS.

CASTLE & OVERTON, Inc.

ROCKEFELLER CENTER

630 FIFTH AVENUE, NEW YORK

Furnishers for Over 60 Years of

RAW MATERIALS *for* PAPER MAKING

W. & L. E. GURLEY

Established 1845

Manufacturers of Instruments for Paper and Textile Testing

(Porosity — Smoothness — Softness — Stiffness — Curl — Shrinkage — Sizing)

Engineering and Surveying
Hydraulic Engineering
Aeronautical Navigation
Meteorology
Standard Precision Weights and Measures

Catalogs sent on request

TROY, N. Y., U. S. A.

JORDAN FILLINGS
BEATER BARS
BED PLATES

The Noble & Wood Machine Co.
HOOSICK FALLS, N. Y.

MISCO "C"

THE CORROSION RESISTANT ALLOY

CAST • ROLLED • FABRICATED
for all equipment exposed to corrosion by sulphite acids
MICHIGAN STEEL CASTING CO., DETROIT, MICH.

THE MANHATTAN RUBBER MFG. DIVISION
OF RAYBESTOS-MANHATTAN, INC.

MANHATTAN—CONDOR
RUBBER PRODUCTS for INDUSTRY
Passaic, New Jersey

K-121-B — DEINKING — DECOLORIZING and COOKING PROCESSES — K-C-2

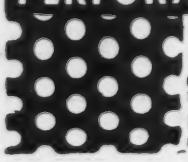
THE KINSLEY CHEMICAL COMPANY
12500 Berea Road — Cleveland, Ohio

INTERNATIONAL WIRE WORKS

Fourdrinier Wires

MENASHA, WISCONSIN

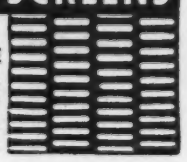
PERFORATED METAL SCREENS



MADE SPECIALLY FOR PAPER and PULP MILL USE

Copper, Bronze, Steel, Stainless Steel and other metals, Heat-treated.

HENDRICK MFG. CO.
60 Dundaff St., Carbondale, Pa.
Offices in Principal Cities



CHAS. T. MAIN, INC.

Consulting Engineers
201 Devonshire St., Boston, Mass.

PULP AND PAPER MILLS

Steam, Hydraulic and Electrical Engineering
Process Studies, Design, Specifications and Engineering Supervision
Reports, Consultation, and Valuations

PAPER MILL CONSTRUCTION

Complete Service — Undivided Responsibility

Buildings — Docks
Machinery Installation — Foundations

MERRITT-CHAPMAN & SCOTT CORPORATION
17 BATTERY PLACE — NEW YORK, N.Y.

GEORGE F. HARDY

Consulting Engineer
305-309 Broadway, New York City, N. Y.
Member—Am. Soc. C.E.—Am. Soc. M.E.—Eng. Inst. Can.

Consultation — Paper and Pulp Mills
Reports — Hydro-Electric and
Valuations — Steam Power Plants
Estimates — Plans and Specifications

HARDY S. FERGUSON & CO.

Consulting Engineers
200 FIFTH AVENUE, NEW YORK CITY
Hardy S. Ferguson.....Member A.S.C.E., A.S.M.E., E. I. C.
Moses H. Teare.....Member A.S.M.E., E. I. C., A.S.C.E.
Consultation, reports, valuations, and complete designs and engineering supervision for the construction and equipment of
Pulp and Paper Mills and other Industrial Plants
Steam and Hydro-Electric Power Plants
Dams and Other Hydraulic Structures

JOHNSON & WIERK, INC.

PULP AND PAPER MILL ENGINEERS

415 Lexington Ave. — NEW YORK, N. Y.

THE CARTHAGE MACHINE COMPANY

CARTHAGE, NEW YORK

Manufacturer of

Machinery and Equipment for Mechanical and Chemical Pulp Mills and Special Machinery

---

Have you tried LOOMFIBRE

a
FINE WHITE FIBROUS INERT FILLER
for
PATENT COATED, WAXING, BLOTTING, PITCH CONTROL

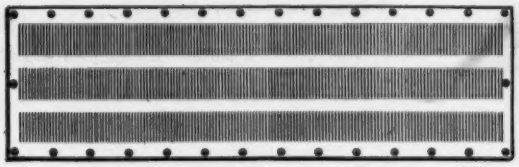
W. H. Loomis Talc Corp. — Gouverneur, N. Y.

WATER CONDITIONING PROBLEMS

ENGINEERS and CONSULTANTS
SURVEYS • PLANT STUDIES • ANALYSES

THE BIRD-ARCHER COMPANY
100 Madison Avenue — New York, N. Y.

Hardy Bronze and Chrome Nickel Steel Screen Plates



HARDY

WILLIAM A. HARDY & SON CO.

FITCHBURG, MASS.

Restigouche

BLEACHED SULPHITE PULP

FRASER INDUSTRIES INCORPORATED

Pulp Division

420 Lexington Avenue New York, 17, N. Y.

More than just a TRADE MARK

EXCELSIOR KNOX Woolen Co. Camden, Me. FELTS & JACKETS

BUT also a guarantee by men who for 78 years have prided themselves in making finer felts. TO YOU —this is the mark of dependability, longer felt life and greater saving.

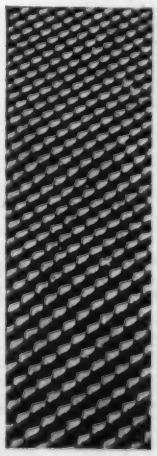
KNOX WOOLEN CO.
CAMDEN, MAINE.

How to INSURE a pulp or paper mill FLOOR

FOR LIFETIME SERVICE AGAINST ALL THESE ENEMIES:

Impact Blows • Humidity • Heavy Traffic
Alternate Wetting and Drying

PROTECT YOUR FLOORS WITH



KLEMP HEXTEEL
HEAVY DUTY SURFACE ARMOR

Whether your floors are wood, concrete, mastic, or any material, Klemp Hexteel can easily be laid over them, and filled flush. Enduring steel mesh provides solid level, one-piece floor that withstands hardest assaults. Also make *lasting* repairs of worn, crumbling or soft spots.

SEND FOR COMPLETE KLEMP CATALOG

Full line of Steel Flooring, Klemp Hexteel, Floorsteel, Welded and Riveted Gratings, Stair Treads, Safety Mats. Wire or write

Special Representative:
C. P. Robinson, 420 Lexington Ave., New York, N. Y.

WM. F. KLEMP COMPANY
"Steel Flooring Specialists"
6617 S. MELVINA AVE. CHICAGO, ILLINOIS

FOR SALE

BEATER-BREAKER

1—50-ton per day Shartle Brothers iron tub "Griley-Unkle" continuous beater — excellent condition.

BEATERS

2—500 lb. Dilts—hollow mid-feather type iron tub beaters—used one year.
1—100 lb. Noble & Wood beater—cast iron tub—cast iron bottom.
2—1,500 lb. Noble & Wood—iron tub beaters.
1—1,200 lb. E. D. Jones—iron tub beater.
3—1,000 lb. Dayton—iron tub beaters.
1—1,000 lb. Downingtown—iron tub beater.
1—600 lb. Gavit—iron tub beater.
2—400 lb. Gavit—iron tub beaters.
1—500 lb. Gavit—iron tub beater.

CALENDER STACKS

1—38" 3-roll—Norwood Engr. Co.
1—36" 7-roll—Holyoke Machine.
1—69" 3-roll—Moore & White.
1—77" 2-roll—Moore & White.
1—46" 3-roll—Van Vlaanderen.
1—86" 5-roll—Black-Clawson.
1—66" 9-roll stack of calenders complete with Marshall Drive.
1—86" 5 roll Mills Machine Co.
1—71" 5 roll Beloit.
1—72" 7 roll Farrel.

CENTRIFINERS

2—Bird Machine Co. centrifiners—direct connected to 7½ h.p. motors—A.C.—3 phase—60 cycles—bronze throughout.

COATING MACHINE

1—26" Board Coater—complete with take off conveyor table—brand new, never used.

CYLINDER MOULDS

10—30" diameter x 72" face.
1—36" diameter x 98" face.
1—36" diameter x 88" face.
1—36" diameter x 80" face with vat.

DRIVES

3—O. D. James 75 H.P. Speed Reducers with couplings and motor bases. Ratio 2.16 to 1. 900 RPM to 418 RPM.

DRYERS

18—36" diameter x 77" face.
45—36" diameter x 80" face.
7—36" diameter x 66" face.
1—24" diameter x 84" face.
1—16" diameter x 84" face.
24—28" diameter x 64" face—2 deck frame, gears, bearings, steam joints, piping, etc.

FLAT SCREENS

2—8 plate flat screens.

FOURDRINIER WET END

1—Beloit Fourdrinier Wet End. Wire 122¾" x 65'—with suction couch roll 18" diameter—MG Set on shake—All anti-friction bearing equipped.

HYDRAULIC PRESSES

1—Holyoke Machine Co. Platen 50" x 22"—250 tons.
1—Holyoke Machine Co. Platen 30" x 20"—500 tons.
1—Holyoke Machine Co. 3 Plunger Pump for the above two presses.

JORDANS

1—No. 1 Appleton jordan—babbitt bearings—couplings for motor—no motor—excellent condition.
1—No. 2 Dillon jordan—belt driven—equipped with sand trap.
1—E. D. Jones Majestic—fillings like new. One spare plug available for this Jordan. Arranged for motor drive. (No motor).
1—Noble & Wood Mammoth Junior equipped with anti-friction bearings—with couplings for direct connection to motor—fillings like new.
1—Noble & Wood Mammoth Junior—belt driven.
6—Noble & Wood Monarch.

LABORATORY EQUIPMENT

1—Freas Electric Oven—110 volt—300 watts.
1—Eureka Abbe pebble mill—23.8 gals.—porcelain lined.

PULP EQUIPMENT

1—Trimbey Classifier — L.H. (Centrifugal Pulp Screen).
1—Trimbey clean up screen with monel plates having .085 perforations—complete with speed reducer and motor.
Above purchased new in 1939 and in operation less than 3 months.
1—U. S. Colloid mill—S-R—intermediate—complete with 2 motors and starters.
1—84" Carthage Chipper.
1—Haug Refiner including Feeder.

PULPER

1—Noble & Wood 1200 lb. Iron Tub Pulper.
1—#1 Lannoye pulper.

ROLLS

500—Brass tube—steel tube—rubber covered iron rolls—various sizes.

RUBBER COUCH ROLLS

1—71" Face x 15⅝" diameter (soft rubber).
1—81" Face x 18⅝" diameter (soft rubber).
1—74" Face x 19½" diameter (soft rubber).

SAVE-ALLS

1—North Save-all—cylinder mould 72" diameter x 100" face—used less than one year.

SHEETERS

1—84" Black-Clawson Co. duplex sheeter—heavy mill type—complete with two Reeves drives.
1—72" Finlay single knife slitter and sheeter.

SLITTER

1—45" Hobbs Board Slitter. Complete with 14 Slitters.

SUCTION COUCH ROLLS

1—Sandusky Bronze 21¼" diameter x 138" drilled face.
1—Sandusky 18" diameter x 122⅜" drilled face with frames and bearings.

SUCTION PRESS ROLLS

1—Sandusky Suction Press Roll, Bronze—18" diameter x 84" drilled face.
1—14⅞" diameter x 77" drilled face.
1—1—14⅞" diameter x 74½" drilled face.

SUCTION PRESS SHELLS (only) BRONZE

1—22" diameter x 118" drilled face.
1—22" diameter x 109" drilled face.
1—18" diameter x 94" drilled face.

THICKENER

1—Thickener—iron ends—wood vat—cylinder mould 30" diameter x 95" face—felt couch—good condition.

TRIMMER

1—64" Oswego.

VARIABLE SPEED ENGINE

1—8 x 10 Brownell, 75 h.p. 25 lb. back pressure. Pickering Governor. Equipped with #2 Reeves Drive.

J. J. ROSS CO., 250 Frelinghuysen Avenue Newark, New Jersey

HELP WANTED

SALARIED POSITIONS — This advertising service of 33 years' recognized standing negotiates for high salaried supervisory, technical and executive positions. Procedure will be individualized to your personal requirements and will not conflict with Manpower Commission. Retaining fee protected by refund provision. Identity covered and present position protected. Send for details. R. W. BIXBY, INC., 117 Delward Bldg., Buffalo, N. Y. tf

MACHINE ADJUSTOR—Potdevin SOS Machines. Steady position. Good salary. Address Box 43-312 care Paper Trade Journal. J-24

MANUFACTURERS REPRESENTATIVE WANTED—Man now covering paper mills in Ohio, Illinois and Michigan to take on paper makers felt line. Please reply in full detail. Address Box 43-320 care Paper Trade Journal. J-24

ENGINEER—Electrical or mechanical engineer for opening in large Massachusetts Paper Mill. Man with experience in Paperboard Mill and Container Plant preferred. Excellent opportunity. In application state age, education, experience and salary expected. Address Box 43-324 care Paper Trade Journal. J-24

DRAFTSMEN, DESIGNERS—Some experience in design of heavy machinery desirable. Excellent opportunities with well established paper machinery builder on war work and post war development. Permanent positions for satisfactory men. In reply, give experience, education, citizenship, age and draft status. Replies held in strict confidence. Please reply to Box 43-322 care Paper Trade Journal. N-25

WANTED—Sales Manager for old established Fancy Paper (box covering) Firm. State experience, salary and personal details. Strict confidence. Kupfer Bros. Co., 2 Astor Place, New York, 3, N. Y. J-8

CLASSIFIED ADVERTISING

HELP WANTED 4c A WORD. Double rate for heavy face type. Minimum charge $1.00

SITUATIONS WANTED 4c A WORD double rate for heavy face type. Minimum charge $1.00. If repeated ½ rate will be charged for each consecutive repetition.

FOR SALE 4c A WORD. Double rate for heavy face type. Minimum charge $1.00

WANTED 4c A WORD. Double rate for heavy face type. Minimum charge $1.00

OPPORTUNITIES 4c A WORD. Double rate for heavy face type. Minimum charge $1.00

All classified advertisements are payable in advance.

Address Replies

to advertisements appearing under Box Numbers in care of

PAPER TRADE JOURNAL
15 West 47th Street
New York, N. Y.

HELP WANTED

WANTED—Mechanical Superintendent for felt mill with production approximately 25 tons per day and approximately 72" trim. Must be familiar with all machinery and its maintenance. Must be capable of accepting responsibility and position as near permanent as business association can be. Salary and tonnage bonus. Address Box 43-360 care Paper Trade Journal. J-1

Asst. Supt. rag paper mill; personnel director; plant engineers; mechanical engineers; mechanical draftsman; tour boss; chemists; stock preparation foreman; wood yard foreman; finishing room foreman; cost accountants and office men; machine and back tenders; beater engineers. Charles P. Raymond Service, 294 Washington Street, Boston J-24

SITUATIONS WANTED

POSITION WANTED—Superintendent of Paper Mill. 30 years experience with cylinder and fourdrinier tissue machines. Now employed. Available August 1. tf

BOSS MACHINE TENDER seeks to change position. 25 years experience on fourdrinier and cylinders, making Kraft specialties, tissue and cigarette. Steady worker. Age 44. Address Box 43-346 care Paper Trade Journal. J-1

EXECUTIVE OFFICE MANAGER-Comptroller. Take complete charge Accounting, Accounts Payables, Accounts Receivables, Production Costs, Operating Statements, Analytical Reports, Credits, etc. 20 years experience. Age 41. Draft exempt. Locate anywhere. Address Box 43-358 care Paper Trade Journal. J-29

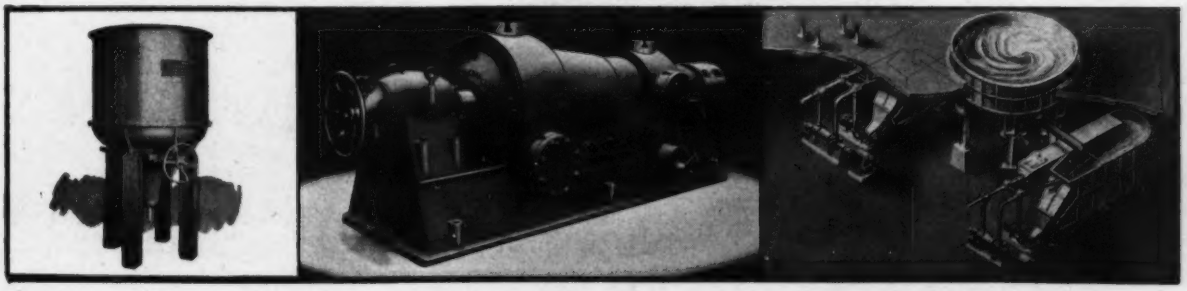
War.. A Hard Taskmaster

Yesterday, every man at Dilts would have said "it can't be done." Yet today... Dilts is doing it, for War must be served. Today Dilts is welding parts for furnaces and heat exchangers, doing annealing operations on anti-aircraft guns, building drill heads, boring heads, special drills, etc., parts for compressors for high octane gas, synthetic rubber, etc.

Tomorrow; the War over, Dilts will quickly shift back to their old love... the manufacture of hydrapulpers, hydrafiners, hollander beaters and other paper mill equipment, and the knowledge and techniques developed now will later benefit the mills that invest in Dilts power equipment.

Dilts Experimental Pulp Laboratory available to all Mills.

THE
Dilts
MACHINE WORKS
FULTON, NEW YORK
Division of
THE BLACK-CLAWSON CO., HAMILTON, OHIO



SITUATIONS WANTED

OPEN FOR A POSITION AS ASSISTANT SUPERINTENDENT OR TOUR BOSS.—TWENTY-EIGHT YEARS OF PRACTICAL EXPERIENCE on Fourdriniers, Harpers, Cylinders, manufacturing the following grades: book, bonds, writing, ledgers, offset, coating, Kraft, dyewiping, manilas, drinking cup, index, bristol, map, envelope, documents, tag board, tabulating, tympan, news, toilet tissues, napkins, toweling. Broad experience on super calenders, embossing machines, all kinds of water and surface marked. Good on colors, also on repairs. Married with family. Age 48. Address Box 43-296 care Paper Trade Journal. J-1

BEATER ROOM FOREMAN or Beater Engineer, wants position. Past draft age. Can handle any stock or color problem. Address Box 43-301 care Paper Trade Journal. J1-8

PAPER CONVERTING FOREMAN—18 years' experience paper cutting, straight and die cutting, sheeting and embossing. Many years successful handling of men. Address Box 43-165, care Paper Trade Journal. TF

MANAGER-SUPERINTENDENT — Practical paper maker and engineer. Experienced on Chipboard, Testboard, manila, Patent Coated, Butter Carton, Blanks and Bristols. Good color man and can get production. Can handle mill from power plant to shipping room. Now employed as mill manager. Address Box 43-317 care Paper Trade Journal. J-1

PRODUCTION SUPERINTENDENT—Cardboard conversion executive, thoroughly experienced in production, layout and supervision, many types cardboard and specialties, seeks position offering better opportunity. Employed. Draft 3-A. Address Box 43-319 care Paper Trade Journal. J-24

CHEMIST—University graduate chemical engineer with 18 years of experience in all grades of sulphite, bleaching, groundwood and newsprint, laboratory research work and technical control. Employed. Draft exempt. Address Box 43-329 care Paper Trade Journal. J-24

SUPERINTENDENT—28 YEARS OF PRACTICAL EXPERIENCE MANUFACTURING HIGHEST GRADE SPECIALTIES, light and heavy weight papers from bleached and unbleached sulphite and sulphate, soda pulp, groundwood, de-inked papers. Familiar with manufacturing problems, progressive, energetic, good organizer. Best references. Age 47. Married with family. Address Box 43-343 care Paper Trade Journal. J-8

CHEMIST-CHEM. ENGR. — Several years varied experience including 4 years paper industry. Two and one half years graduate training toward Ph.D. major organic chemistry, minor chemical engineering. Classification 4H. Address Box 43-345 care Paper Trade Journal. J-22

FOURDRINIER MACHINE TENDER—Reliable, experienced on Kraft, Books, Bonds, Tissue. Would consider back tending. Address Box 43-350 care Paper Trade Journal. J-24

MANAGER SUPERINTENDENT—Practical papermaker and engineer both paper and board. Grades of paper range from Bond, Envelope, Book, Sulphite and Kraft, both M.G. and M. F. on Fourdrinier, Harper and Yankee machines and on cylinder machines making Chip, Manilla, Butter Cartons, Patent Coated, Bottle Caps, Blanks and Bristols. Can handle help and get production. Good color man now employed as mill manager. Address Box 43-352 care Paper Trade Journal. J-15

FOR SALE

FOR SALE

New and guaranteed used steel pipe and boiler tubes; electric welded, riveted and bolted steel tanks of all capacities; steel buildings.

GREENSPON'S, NATIONAL STOCK YARDS
St. Clair County, Ill.
TF

FOR SALE—Paper Bag Factory fully equipped to manufacture square and flat grocery bags, millinery and notion bags and some specialties. The plant is in good running condition. Can be seen by appointment. Address Box 43-342 care Paper Trade Journal. J-24

FOR SALE
REBUILT ELECTRICAL MACHINERY

HIGH TORQUE & SLIP RING MOTORS

3 ph. 60 cy.
700 HP G.E. 393 RPM MT 432
300 HP G.E. 600 RPM I-M
200 HP (5) G.E. 600 RPM I-L
200 HP G.E. MT 412 250 RPM
150 HP G.E. 720 RPM I M
150 HP G.E. 680 RPM I M
150 HP G.E. 600 RPM I L
150 HP Al.Ch. 685 RPM
125 HP Al.Ch. 435 RPM Y
100 G.E. 500 RPM MI 23 cy.
52 HP G.E. 900 RPM ITC
50 HP West. 900 RPM CW

SQUIRREL CAGE MOTORS

150 HP West. 600 RPM CCL
125 HP Burke 1200 RPM
125/40 HP Cr. Wh. 700/350 RPM

M-G SETS

150 KW West. 550 v. DC—2300/4000/3/60 M.G. Set
150 KW Ridgway 250 v. DC

M-G SETS (Cont.)

2300/4000/3/60 M.G. Set
30 KW West. Gen. 250 v. 1150 RPM DC—40 HP Al. Ch. 220/440 v. AC
22½ KW Al. Ch. Gen. 125 v. 900 RPM DC—33.5 HP Al. Ch. 2200 3/60 AC

MISCELLANEOUS

5-2 Ton 230 v. DC Monorail Hoists
492 cu. ft. Ch. Pn. Oil Engine driven Compressor Type NS03, 100# pres.
Ing. Rd—1100 cu. ft. 100#, 2 stage
2-Sullivan Comp. 500 cu. ft. 52#
50-5 KVA G.E. Trans. 2200/122, 244 v.
35-7½ KVA G.E. Trans. 2200/122, 244 v.
100 KW 250 v. West.—Skinner Unit
180 KW G.E. 220/440/2300/3/60 720 RPM AC Gen.

MISCELLANEOUS (Cont.)

175 KW G.E. Type ATB 2400/480/240 v. 200 RPM AC Generator.
3-50 KVA G.E. 22000 v. pri. 2300 v. sec. Trans.
3-75 KVA G.E. 2300 v. pri. 110/220 v. sec. Trans.
3-100 KVA Uptegraff 440 v. pri. 220 v. sec. Trans.
1-150 KVA G.E. 2080 v. pri. 230/460 v. sec. 3 ph. Trans.

DC MOTORS

200 HP 230 v. 600 RPM Allis Chalmers
125 HP 230 v. 750 RPM G.E. Type RC
100 HP 230 v. 600 RPM G.E. Type RC
50 HP 230 v. 1750 RPM G.E. RCP
50 HP 230 v. 850 RPM G.E. CD 115

Wanted: 500 HP 250 RPM slip ring motor—also 600 or 750 KW M.G. Set 250 v. DC-3/60AC

Dealing in Rebuilt Electrical Machinery, exclusively, for a quarter of a century.

MOORHEAD-REITMEYER CO. INC.
30th & Brereton Sts. **Pittsburgh, Pa.**

FOR SALE

FOR SALE

Waterbury Universal Hydraulic Variable Speed Drive. Size 50—Type C.
5 roll 96" calender, bottom roll 20"; 15" top; and intermediate rolls 9"; with Vickery doctors.
Norwood Engineering Company book plater, 45" face rolls, heavy construction.
Norwood Engineering Company book plater, 36" face rolls, heavy construction.
Warren two drum winder 86½" face drums and 7" dia. rider roll, with Slitter.

For sale by FRANK H. DAVIS CO.
175 Richdale Ave., Cambridge, Mass.
J-1

FOR SALE

1—68" Fourdrinier Machine and all auxiliaries including stock preparation equipment.
1—75 Ton Sulphite Mill consisting of digesters, chippers, pumps, screens, etcetera.
Cutters and Finishing Room equipment.
Steam Engines and Generators. Steel Framed Buildings for re-erection.
Storage Tanks.

Write E. L. Elliott, Trustee,
Austin, Pennsylvania
J-24

FOR SALE

72" Inman Rotary Heavy Duty Slitter

Shear Cut—10 sets of Slitters.
Will slit down to 1" width.
Takes 48" diam. Mill Roll and rewinds to same size.

THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York, 18, N. Y.
TF

FOR SALE

30", 34", 42", 45" and 72" Rotary Slitters; 72" Moore & White Rewinder; 50" to 65" Single Knife Sheeters; 44" Seybold Dayton Automatic Clamp Power Cutter; 54" Seybold Holyoke mill type Cutter; Yates-American heavy duty Jig Saw; 14 x 22 John Thomson Colts Armory and "Laureate" Presses; 45 x 65 Robinson Double Scorer; 14 x 28 Meisel two-color roll feed Press; Kidder Rotary Presses—one, two and three color. Cottrell 3-color Rotary, especially suited for glassine or waxed paper work. Thomas W. Hall Co., 120 West 42nd St., New York. TF

FOR SALE—Laminating, moisture proof, self self sealing, lower cost than amorphorus wax. Easy to apply. Low converting cost. Address Box 43-357 care Paper Trade Journal. J-1

FOR SALE

REBUILT POWER EQUIPMENT—READY TO SHIP!

A.C. MOTORS—3 ph. 60 cy.

Qu.	Hp.	Make	Type	Volts	Speed
1	1000	G.E.	K	2300	509
2	400	West.	CS	2200/220/440	500
2	250	G.E.	I-K	550	720
1	250	G.E.	KT	220/440	1200
1	225	G.E.	TRE-Syn.	2200	200
2	200	G.E.	I-K	220/550	600
1	200	G.E.	I-K	220/550	514
2	200	G.E.	I-K	550	720
1	200	West.	CS	2200	870
2	200	G.E.	I-K	2300	1200
1	200	G.E.	KT	2200	1800
1	150	G.E.	I-K	220/550	450
2	150	G.E.	I-K	550	514
1	150	G.E.	I-K	550	575
2	150	G.E.	I-K	440	600
1	150	Al.-Ch.		2200	1800
1	125	G.E.	I-K	220/550	400
1	125	G.E.	I-K	440	514
1	125	G.E.	I-K	440	450
1	100	G.E.	I-K	220	575
1	100	G.E.	I-K-14	220/440	720
1	100	Al.-Ch.		220	900
1	100	U.S.	SC	220/440	1100
2	100	G.E.		220/440	1770
1	75	West.	CS	220	600
2	75	G.E.		550	720
2	75	G.E.	IK	220/440	900
1	75	West.	CS	220/440	1160
1	75	G.E.	FT	220/440	1180
2	75	L-Al.	OX-505	220/440	1770
1	60	Tr'ph.		220/440	430
1	60	Cr.Wh.		220/440	670
2	60	G.E.	I	220/440	720
1	54	Al.Ch.		220/440	900
1	50	Cr.Wh.		220/440	1160
1	50	West.	CCL	220/440	650
1	50/100	West.	CS	220/440	345/700
1	50/32	G.E.	POS	220/440	800/640
2	50	West.		220/440	600
1	50	Wag.		220/440	850
3	50	G.E.	I	220/440	900
1	50	Al.Ch.	AN	220/440	1160
1	50	G.E.		220/440	1200
1	50	U.E.El.	Vert.	220/440	3600
1	45	West.	CS	220/440	850
4	40	Am.El.		220/440	685
1	40	G.E.	KT	220/440	720
1	40	Am.El.	Vert.	440	685
1	40	West.	CS	220/440	600
2	40	G.E.	KT	220/440	860
1	40	G.E.	KT336	220/440	1200
2	35	West.		220/440	514
1	35	Cr.Wh.		220/440	570
1	35	G.E.	KT	220/440	600
2	30	G.E.	KT336	220/440	865
2	35	G.E.	I	550	900
1	35	G.E.	I	220/440	1200
1	35	Linc.		220/440	720
1	30/36	G.E.	KT	220/440	3600
1	30	G.E.	KT332	220/440	860
1	30	G.E.	KT332	220/440	1200
1	30	Al.Ch.		220/440	1800

DIESEL ENGINE GENERATOR SET

217 KVA G.E. 2300/3/60 dir. con. 280 HP Buckeye 2 cyl. 200 rpm. semi-diesel engine, complete.

INDUSTRIAL TRUCKS

1—Baker Tow Truck—8' long—64" high—48" wide—Ground to coupling 16, 18, 21, 23—4—19" —coupling on frame 19" from ground.
3—Elwell Parker Tow Tractors 7' L. x 42" W. x 42" H. 4-16" wheels, ball bearing 4 wheel steer, 4 wheel drive, 2000-lb. DBP complete with Edison Batteries.

SPEED REDUCERS

6—2 H.P. Falk double reduction, 1st red spur. 2nd red worm 830 rpm. to 12 rpm.

WRITE, WIRE OR PHONE YOUR ELECTRICAL REQUIREMENTS

DUQUESNE ELECTRIC & MFG. CO.
PITTSBURGH, PA.

FOR SALE

FOR SALE—Langston Heavy Duty Spiral Paper Tube Winder for Large Diameters. Two glue pots. THEO ADAMS, 111 W. Washington St., Chicago, Illinois. J-1

PAPER COATING MACHINERY—Waxing Oiling, Gumming, Gluing, Asphalt, Duplexing, Laboratory Coating and Treating machines. High speed. New improvement. MAYER COATING MACHINES COMPANY, INC., Rochester, N. Y. TF

FOR SALE—1 Maina Centrap Centrifiner with motor, in very good condition. Address Box 43-355 care Paper Trade Journal. J-24

FOR SALE—1-ton Beater Fly Bars like new, 5¼" x 5 feet; One Sandusky Suction Press Roll 14 1/16" 76" drill face. Complete with L-5 Nash Vacuum Pump. Address Box 43-359 care Paper Trade Journal. tf

FOR SALE—38" Oswego Automatic Clamp Cutter, fully rebuilt and guaranteed. Address Box 43-362 care Paper Trade Journal. J-24

WANTED

WANTED—Two Trimbey Senior Pulp Screens; One nine-roll supercalender 56" to 66" face; One No. 3 Reeves Drive; One No. 4 Reeves Drive. Address Box 43-361 care Paper Trade Journal. J-8

WANTED—DISCARDED PAPER MILL FELTS. HIGHEST PRICES paid for all kinds of discarded paper mill felts. **LARGE or SMALL QUANTITIES** accepted. Prices quoted immediately on receipt of samples. ADDRESS: GLASER AND YOFFE, INC., CHELSEA, MASS. TF

WANTED—10-20 Dryers and frames 36 x 78 or 80 complete. Address Box 42-727, care Paper Trade Journal. tf

WANTED—One Gurley Densometer, Model No. 4110 or 4100. Address Box 43-344 care Paper Trade Journal. J-24

WANTED

Assistant Superintendent for two machine mill making the better grades of folding boxboard for own box plant. Require a man having experience in the producing of highest quality, and ability to handle help and get maximum production. Unusual opportunity. State complete information concerning experience, age and salary, also earliest date when will be available. References required. Address Box 43-363, care Paper Trade Journal. TF

WANTED

Two 200 H.P. alternating current synchronous motors, 2300 volt, 514 R.P.M.

One Suction Couch Roll (Beloit or Downingtown) suitable for Fourdrinier machine with 100" wire. Must be 20" or 22" diameter and 5/16" holes.

Four Hypoid Reduction Gears suitable for driving Couch and Press units on 100" machine.

Two Vickery Felt Conditioners.

One 2-roll Dornbusch Embossing Machine to emboss sheet up to 45" in width.

One 86" Seybold Precision Trimmer.

All the above to be in good working condition.

Address Box 43-274
care Paper Trade Journal

TF

CLASSIFIED

ADS

BRING

RESULTS

E. J. CADY & CO.

549 W. Washington Blvd. CHICAGO

Desk Model .200 around 6 inch diameter dial. Maximum thickness—325 points. This Cady Desk Model Micrometer is now produced in both 1/1000 and half-thousands of an inch.

Walker Goulard, Plehn, Inc. Agents

450 Pearl Street New York City

Wanted at once to work in Essential Plant

Machine Tenders
Back Tenders

Men with experience in making the better grades of folding boxboard to work forty-eight hours per week and every third Sunday, in two-machine mill. Time and one-half for all over forty hours per week.

Machine Tenders average $70.00 per week.
Back Tenders average $58.00 per week.

THE BARTGIS BROTHERS COMPANY
Catonsville, Maryland (Ilchester) TF

The right man may be seeking a job in an advertisement in this section.

The machine or the material you urgently need may be advertised right here in these columns.

Read Them, Use Them—If you need something, advertise for it — If you have something to sell tell the industry about it—Everybody reads the Clearing House.

STICKLE

Improve Drying Efficiency and Obtain Positive Automatic Control of Moisture Content

20 TO 30 PER CENT. INCREASED CAPACITY FOR DRIERS . . . 10 TO 15 PER CENT. FUEL SAVING WITH EQUAL INCREASE IN BOILER CAPACITY

ASK FOR BULLETINS No. 60 AND 60-C

STEAM SPECIALTIES CO. · 2245 Valley Ave. · INDIANAPOLIS, IND.

ALPHABETICAL INDEX TO ADVERTISERS

Acme Steel Co. 8
Adams, R. P., Company, Inc. 3
American Colloid Company .. —
American Cyanamid & Chemical Corp. 78
American Manganese Steel Division American Brake Shoe & Fdy. Co. 75
American Rolling Mill Co. ... —
American Wringer Co., Inc. .. —
Ames, B. C., Company 102
Andersen & Co., J. ..... —
Ansul Chemical Co. ..... —
Appleton Machine Co. ..... —
Appleton Wire Works, Inc. .. 14
Appleton Woolen Mills 99
Armstrong Machine Works .. 74
Asten-Hill Mfg. Co. ..... —

Bagley & Sewall Co. 60
Bahr Brothers Mfg. Co. .... —
Bantam Bearings Division, The Torrington Company ..... —
Bauer Brothers Co. 95
Bausch & Lomb Optical Co. . 108
Betz, W. H., & L. D. ..... —
Binney & Smith Co. ..... —
Bird-Archer Co. 110
Bird Machine Co. 39
Black-Clawson Co. 113
Bloomfield Woolen Co. ..... —
Bowsher Co., N. P. ..... —
Brown Instrument Co. ..... —

Cady, E. J., & Co. 115
Calco Chemical Co., Inc. 9
Cameron Machine Co. 33
Carthage Machine Co. 110
Castle & Overton, Inc. 109
Chemical & Pigment Co. 108
Cheney Bigelow Wire Works.. —
Chromium Corp. of America.. 58
Ciba Company ..... —
Classified Advertising 112
Clinton Company ..... —
Columbian Carbon Co. ..... —
Combustion Engrg. Co. 21
Corning Glass Works ..... —
Corn Products Refining Co.... 107
Covel-Hanchett Co. 93

Davis Co., Frank H. ..... —
DeLaval Steam Turbine Co... 30
Diamond Alkali Company .... —
Dietz Machine Works ..... —
Dilts Machine Works 113
Dorr Company 93
Dow Chemical Co. 43
Downingtown Mfg. Co. 2
Draper Bros. Company 73
Dravo Corporation 97
Du Pont de Nemours & Co., Inc. 57
Du Pont de Nemours & Co., Inc., Grasseli Chemical Dept. —
Du Pont de Nemours & Co., Inc., Du Pont Pigments Dept. 11
DuQuesne Elec. & Mfg. Co... 115

English China Clay Sales Corp —
Elixman Paper Core Co. .... —

Farrel-Birmingham Co., Inc. .. 31
Ferguson, Hardy S., & Co. .. 110
Fitchburg Screen Plate Co. ... —
Foxboro Company ..... —
Fraser Industries 111
Frederick Iron & Steel Co. .. 102

Geigy Company, Inc. ..... —
General Dyestuff Corp. 19
General Electric Co. ..... —
Glidden Company 108
Glyco Products Co., Inc. .... —
Gottesman & Co. ....Front Cover
Grasseli Chemical Dept., Du Pont de Nemours & Co. ... —
Greene Machine Co. ..... —
Grinnell Company 49
Gulf Oil Corporation ..... —
Gurley, W. & L. E. 110

Hamblet Machine Company .. 109
Hardy, George F. 110
Hardy, Wm. A., & Son Co. .. 111
Harrington & King Perforating Co. 97
Hayden Wire Works ..... —
Heller & Merz Corp. 9
Hendrick Mfg. Co. 110
Heppenstall Company ..... —
Hercules Powder Company ... 51
Hermann Mfg. Co. ..... —
Hooker Electrochemical Co. .. 107
Hubbs Houses ..... —
Hudson Sharp Machine Co. .. —
Hunt, Rodney, Machine Co. .. —
Huyck & Son, F. C. 4

Improved Paper Machy. Corp. ..... 62 & 63
Ingersoll Steel & Disc Div., Borg-Warner Corp. ..... —
International Nickel Co..... 29
International Pulp Co..... —
International Wire Works..... 110

Johnson Corporation 95
Johnson & Wierck, Inc..... 110
Johnstone Engrg. & Machine Co. ..... —
Jones, E. D., & Sons Co..... 47

Kalamazoo Tank & Silo Co... 64
Kinsley Chemical Co..... 110
Klemp, W. F., Company..... 111
Knox Woolen Co..... 111

Langston Co., Samuel M..... 13
Lawson, E. P., Co., Inc..... —
Leeds & Northrup..... 106
Lindsay Wire Weaving Co.... 45
Lobdell Company 99
Lockport Felt Co..... —
Lockwood's Directory ..... —
Loomis, W. H., Talc Corp. .. 110

Magnetic Pigment Co..... —
Magnus Chemical Co..... 100
Main, Inc., Chas. T..... 110
Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc... 110
Meisel Press Co..... 102
Merrick Scale Mfg. Co..... —
Merritt-Chapman & Scott Co.. 110
Michigan Steel Casting Co..... 110
Miller, Inc., Bert C..... —
Monsanto Chemical Co..... 34
Montague Machine Co..... 103
Moore & White Company..... 91
Moorhead-Reitmeyer Co., Inc.. 115
Morey Paper Mill Supply Co. —
Mt. Vernon-Woodbury Mills, Inc. 41
Murray Mfg. Co., D. J..... 24

Nash Engineering Co..... 108
National Aniline Division, Allied Chemical & Dye Corp.. 101
National Oil Products Co..... 105
National Technical Laboratories 65
Niagara Alkali Company..... 53
Nichols Engrg. Co..... 72
Noble & Wood Machine Co... 110
Norwood Engineering Co..... 103
Norton Company ..... —

Orr Felt & Blanket Co..... —
Oliver United Filters 61

Paper & Industrial Appliances ..... 26 & 27
Paper Converting Mach. Co... 108
Pennotex Oil Corp..... —
Pennsylvania Salt Mfg. Co. .. —
Perkins-Goodwin Co. 68
Perkins & Sons, Inc., B. F.... 35
Permutit Company ..... —
Philadelphia Quartz Co..... 104
Photovolt Corporation 102
Pittsburgh Plate Glass Co., Columbia Chemical Division... 15
Porter, H. K., Company, Inc... —
Potdevin Machine Co..... 102
Price & Pierce, Ltd..... 104
Process Engineers ..... —
Pulp Bleaching Co..... —
Pusey & Jones Corp..... 36

Record Foundry & Machine Co. 106
Reliance Elec. Engrg. Co..... —
Research Corporation 28
Resinous Products & Chemical Co. 71
Rhoads & Sons, J. E..... 97
Rice Barton Corp..... —
Roehlen-Engraving Works, Inc. —
Rogers, Samuels, Co..... 104
Rollway Bearing Co..... —
Ross, J. J., Company..... 112
Ross Engineering Corp., J. O.. 16
Rubin, Murray M. ..... —

Sandusky Fdy. & Mach. Co... 109
Sandy Hill Iron & Brass Works 91
Seaboard Air Line Ry..... 105
Shartle Bros. Machine Co..... 113
Shuler & Benninghofen..... 22
Simonds Worden White Co... —
Sinclair Refining Company.... 23
Sirrine, J. E., & Company.... —
Smith & Winchester Mfg. Co. 66
Socony Vacuum Oil Co., Inc. —
Solvay Sales Corp..... 101
Sonoco Products Corp..... —
Spray Engineering Company.. 100
Stanley Works ..... —
Stauffer Chemical Co..... 106
Stearns Magnetic Mfg. Co..... —
Stebbins Engrg. & Mfg. Co... 72
Stein, Hall & Co..... 25
Stickle-Steam Specialties Co... 115
Stone & Webster Engineering Corp. ..... —
Sun Oil Co. ..... —

Taylor Forge & Pipe Works.. —
Taylor Instrument Co..... 67
Taylor Stiles & Co..... 106
Texas Gulf Sulphur Co..... 12
Tidewater Assoc. Oil Co.....6 & 7
Timken Roller Bearing Co. Back Cover
Titanium Pigment Corp..... 10
The Torrington Co., Bantam Bearings Division ..... —
Turner Halsey Company..... 41

Union Machine Co..... —
Union Screen Plate Co..... —
Union Talc Company ..... —
United Carbon Co. ..... —
United Color & Pigment Co... —
U. S. Rubber Company..... —

Valley Iron Works..... 119
Virginia Smelting Co..... 93

Waldron Corp., John..... —
Walker-Goulard-Plehn, Inc. .. 115
Walworth Company 18
Warren Steam Pump Co..... 70
Waterbury Felt Co. ..... —
Weber, H. G., & Company... —
Westinghouse Elec. & Mfg. Co. 17
West Virginia Pulp & Paper Co. 104
Weyerhaeuser Timber Co..... 20
Williams, C. K., & Company.. 109
Wishnick-Tumpeer, Inc. ..... —
Woods, T. B., Sons Company 69
Worthington Pump & Machy. Corp. 59
Wyandotte Chemicals Corp.... 32

WHERE TO BUY

ABRASIVES
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Monsanto Chemical
Norton Co.

ADHESIVES
National Starch Products, Inc.
Philadelphia Quartz Co.
Stein, Hall & Co., Inc.

AGITATORS
Appleton Machine Co.
Dilts Machine Works, Inc.
Dorr Company
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
D. J. Murray Mfg. Co.
Downingtown Mfg. Co.
Montague Machine Co.
Moore & White Co.
Noble & Wood Machine Co.
The Norwood Engineering Company
The H. K. Porter Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

BAG MACHINES
Potdevin Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Weber, Herman G.

BARKERS AND CHIPPERS
Appleton Machine Co.
Carthage Machine Co.
D. J. Murray Mfg. Co.
Valley Iron Works Co.

BARS
Dilts Machine Works, Inc.
E. D. Jones & Sons Co.
The Moore & White Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BEARINGS
Bantam Bearings Division, The Torrington Company
Black-Clawson Company
Jones, E. D. & Sons Co.
The Manhattan Rubr. Mfg. Co.
Montague Machine Works
Rollway Bearing Co.
Shartle Brothers Machine Co.
Timken Roller Bearing Co.
Valley Iron Works Co.

BEATERS & JORDANS
The Appleton Machine Co.
Black-Clawson Company
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
J. J. Ross Company
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works

BED PLATES
Bahr Brothers Mfg. Co.
Dilts Machine Works Inc.
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Simonds Warden White Co.
Valley Iron Works Co.

BELTING
Cincinnati Rubber Mfg. Co.
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
Worthington Pump & Machinery Corp.

BLEACHING APPARATUS
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
Perkins & Sons, Inc., B. F.
Moore & White Co.
Niagara Alkali Co.
Noble & Wood Machine Co.
Pennsylvania Salt Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

BLOW PIPES & PITS
Montague Machine Co.
Moore & White Co.
Murray Mfg. Co., D. J.
Walworth Company
Valley Iron Works Co.

BOTTOMS
Harrington & King Perforating Co.
Kalamazoo Tank & Silo Co.

BUSHINGS
Black-Clawson Company
Manhattan Rubber Mfg. Co. Division of Raybestos-Manhattan, Inc.
The Sandy Hill Iron & Brass Works

CALENDERS
Black-Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
Lobdell Car Wheel Co.
Moore & White Co.
Perkins & Son, Inc., B. F.
The Norwood Engineering Company
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works
Waldron Corp., John

CASTINGS
Appleton Machine Co.
Black-Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
The Frederick Iron & Steel Co.
Grinnell Company
Hamblet Machine Co.
E. D. Jones & Sons Co.
Lobdell Car Wheel Co.
Montague Machine Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Union Machine Company
Union Screen Plate Co.
Valley Iron Works Co.
Wallworth Company

CENTRIFUGAL MACHINERY
Bird Machine Co.
De Laval Steam Turbine Co.
Ross J. O. Eng. Co.
Shartle Brothers Machine Co.

CHEMICALS
Amer. Cyanamid & Chem. Corp.
Ansul Chemical Co.
Chemical & Pigment Co.
The Columbia Alkali Corp.
Calco Chemical Co.
Diamond Alkali Co.
Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
General Dyestuff Corp.
Geigy Co., Inc.
Gottesman & Co.
Hooker Electrochemical Company
Monsanto Chemical Company
Niagara Alkali Company
Paper Makers Chemical Department, Hercules Powder Co.
Pennsylvania Salt Mfg. Co.
Solvay Sales Corp.
Stauffer Chemical Company
Virginia Smelting Co.
Wishnick-Tumpeer, Inc.
Wyandotte Chemicals Corp.

CLEANING MATERIALS
Amer. Cyanamid & Chem. Corp.
Bird Machine Co.
E. I. du Pont de Nemours & Co., Inc.
Paper Makers Chemical Department, Hercules Powder Co.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Solvay Sales Corp.
Wyandotte Chemicals Corp. J. B. Ford Division

CLUTCHES
Appleton Machine Co.
Black-Clawson Company
Hudson Sharp Machine Company
Farrel-Birmingham Co.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Stearns Magnetic Mfg. Co.
Valley Iron Works Co.

COATING MACHINERY
Hudson Sharp Machine Company
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corporation, John
Weber, Herman G.

COCKS
Shartle Brothers
Walworth Company
Valley Iron Works Co.

COMPRESSORS
De Laval Steam Turbine Co.
Nash Engineering Co.
Worthington Pump & Machinery Corp.

WHERE TO BUY

CONSULTING ENGINEERS
W. H. L. D. Betz
Ferguson, Hardy S.
Hardy, George F.
Johnson & Wierk, Inc.
Merritt-Chapman & Scott Corp.
Main, Inc., Chas. T.
J. E. Sirrine & Co.
Stone & Webster Engrg. Corp.

CONVEYORS
Black-Clawson Company
Murray, D. J. Mfg. Co.
Ross Engineering Corp., J. O.

COOKING PROCESSES
Kinsley Chemical Co.

CORES
Elixman Paper Co.
Sonoco Products Co.
Rodney Hunt Machine Co.
Montague Machine Co.
Smith & Winchester Mfg. Co.

COUPLINGS
Black-Clawson Company
De Laval Steam Turbine Co.
Farrel-Birmingham Co., Inc.
The Frederick Iron & Steel
E. D. Jones & Sons Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.
Waldron Corp., John
Westinghouse Electric Mfg. Co.

CUTTERS
Noble & Wood Mch. Co.
Perkins & Son, Inc., B. F.
The Smith & Winchester Mfg. Co.
Taylor Stiles & Co.

DAMPENERS
The Norwood Engineering Company
Perkins & Son, Inc., B. F.
Valley Iron Works Co.

DE-COLORIZING
Kinsley Chemical Co.

DE-INKING
Kinsley Chemical Co.

DIGESTERS
The H. K. Porter Company
Pusey & Jones Corp.

DOCTORS
Bird Machine Company
Black-Clawson Company
Downingtown Mfg. Co.
Lobdell Carwheel Co.
Montague Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

DOCTOR BLADES
Black-Clawson Company
Cincinnati Rubber Mfg. Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Montague Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers
Westinghouse Electric & Manufacturing Company

DRIERS
Black-Clawson Company
Murray Mfg. Co., D. J.
J. J. Ross Company
Ross, J. O. Engineering Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.
Waldron, Corp., John

DRIVES & DRIVE STANDS
Bird Machine Co.
Black-Clawson Company
Davis, Frank H., Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Brimingham Co.
General Electric Company
Montague Machine Co.
Moore & White Co.
Murray, D. J. Mfg. Co.
Noble & Wood Machine Co.
Norwood Engrg. Co.
Pusey Jones Corp.
J. J. Rose Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.
Westinghouse Electric & Manufacturing Company

DRUMS
Stearns Magnetic Mfg. Co.
Waldron Corp., John

DUSTERS
Appleton Machine Co.
Downingtown Mfg. Co.
E. D. Jones & Son Co.
Moore & White Co.
Noble & Wood Machine Co.
Norwood Engrg. Co.
D. J. Murphy Mfg. Co.

DYESTUFFS
Calco Chemical Co.
Ciba Company
E. I. du Pont de Nemours & Co.
Geigy Co., The
General Dyestuff Corp.
Glidden Company
Paper Makers Chemical Department, Hercules Powder Co.
C. K. Williams & Co.
Wishnick-Tumpeer, Inc.

ELECTRIC EQUIPMENT
General Electric Co.
Reliance Electric & Mfg. Co.
Westinghouse Electric & Manufacturing Company

EVAPORATORS
Black-Clawson Company
Murray, D. J., Mfg. Co.

EXTRACTORS
Bird Machine Company
Dilts Machine Works
Downingtown Manufacturing Co.
E. D. Jones & Sons Co.
The Noble & Wood Machine Co.
Valley Iron Works Co.

FANS
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

FEEDERS
Merrick Scale Mfg. Co.
Leeds & Northrup
Permutit Company
Wallace & Tiernan

FELTS
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Bloomfield Woolen Co.
Draper Bros. Co.
Huyck & Son, F. C.
Knox Woolen Co.
Lockport Felt Co.
Mt. Vernon-Woodbury Mills, Inc.
Orr Felt & Blanket Co.
Shuler & Benninghofen
Turner Halsey & Co.
Waterbury Felt Co.

FELT GUIDES
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

FILLERS
American Colloid Co.
Amer. Cyanamid & Chem. Corp.
International Pulp Co.
W. H. Loomis Talc Corp.
Vanderbilt Co., R. T.
Wishnick-Tumpeer, Inc.

FILTERS
Improved Paper Machy. Corp.
Moore & White Co.
The Norwood Engineering Company
The Permutit Company
J. O. Ross Engrg. Corp.
Union Talc
Worthington Pump & Mchy. Corp.
Wishnick-Tumpeer, Inc.

FITTINGS
Black-Clawson Company
Grinnell Company
Murray, D. J., Co.
Shartle Brothers Machine Co.
Walworth Company

FLOORING, GRATING & TREADS
Hendrick Mfg. Co.
Klemp, W. F., Co.
Norton Co.
Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
Robinson, C. P.

FORMING MACHINES
Downingtown Mfg. Co.
Improved Paper Machy. Corp.
Noble & Wood Machine Co.
Oliver United Filters
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

GATES (Penstocks and water wheels)
Rodney Hunt Machine Co.

GEARS
Black-Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

GRINDERS
Covel-Hanchett Co.
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Montague Machine Co.
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

GRINDING WHEELS
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Simonds Worden White Co.

HANGERS
Black-Clawson Company
Grinnell Company
Walworth Company

HEATING, VENTILATING AND AIR CONDITIONING
The Appleton Machine Co.
Armstrong Machine Works
E. D. Jones & Sons Co.
Foxboro Company
General Electric Co.
Grinnell Company
Leeds & Northrup
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Ross Engineering Corp., J. O.
Shartle Brothers Machine Co.
Valley Iron Works Co.
Worthington Pump & Mchy. Corp.

HEAT-TREATING FURNACES
Leeds & Northrup Company

HOISTS
Appleton Machinery Co.
Dilts Machine Works
Rodney Hunt Machine Co.
E. D. Jones & Sons Co.

HOSE (Air, Water, Suction, etc.)
Cincinnati Rubber Mfg. Co.
The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc.

INDICATORS AND INSTRUMENTS
N. P. Bowsher
The Foxboro Company
General Eelctric
Leeds & Northrup Company
National Technical Laboratories
The Permutit Company
Taylor Instrument Cos.
Westinghouse Electric & Manufacturing Company

JORDAN FILLINGS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Black-Clawson Company
Dilts Machine Works, Inc.
Greene Machine Co.
Hamblet Machine Co.
Heppenstall Co.
E. D. Jones & Sons Co.
Simonds Warden White Co.
Valley Iron Works Co.

LABORATORY EQUIPMENT
Appleton Machine Co.
W. H. & L. D. Betz
Dilts Machine Works
E. D. Jones & Sons Co.
LaMotte Chemical Products Company
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works Co.

LAY BOYS
Hamblet Machine Co.
Moore & White Co.
Shartle Brothers

LOCOMOTIVES
The H. K. Porter Company

LUBRICANTS
Gulf Oil Corporation
Gulf Refining Co.
Sinclair Refining Co.
Socony-Vacuum Oil Co., Inc.
Sun Oil Company
Tide Water Associated Oil Co.

METERS
The Brown Instrument Co.
The Foxboro Company
Leeds & Northrup Company
Mason-Neilan Regulator Co.
Merrick Scale Co.
National Technical Laboratories
Permutit Co.
Taylor Instrument Companies
Westinghouse Electric & Manufacturing Company

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Montague Machine Co.
Lobdell Car Wheel Co.

MOTORS & GENERATORS
De Laval Steam Turbine Co.
General Electric Co.
Westinghouse Electric & Manufacturing Company

PACKING BOXES
Johnson Corporation
Shartle Brothers Machine Co.

PACKING
Cincinnati Rubber Mfg. Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.

PADDLES
Bahr Brothers Mfg. Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

PAPER MACHINES
Black-Clawson Company
Downingtown Mfg. Co.
Moore & White Co.
Pusey & Jones
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester

PAPER MACHINE HOODS
Ross Engineering Corp., J. O.

PAPER MACHINE SLICES
Black-Clawson Company
E. D. Jones & Sons Co.
Montague Machine Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

PAPER TUBE MACHINERY
Dietz Machine Works
Hudson Sharp Machine Company
Langston Co., Samuel M.

PASTING MACHINES
Black-Clawson Company
Davis, Frank H., Co.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John

PERFORATED METAL
Harrington & King Perforating Co.
Hendrick Mfg. Co.

PIPE
The American Rolling Mill Co.
Black-Clawson Company
Grinnell Company
Shartle Brothers Machine Co.
Taylor Forge & Pipe Works
Walworth Company

PLATERS
The Norwood Engineering Company
Perkins & Son, Inc., B. F.

PLATES
The American Rolling Mill Co.
Black-Clawson Company
Ingersoll Steel & Disc Division, Borg Warner Corp.
Klemp, W. F. Co.
Robinson, C. P.
Shartle Brothers Machine Co.
Timken Roller Bearing Co.

PLUGS
Black-Clawson Company
E. D. Jones & Sons Co.
The Noble & Wood Machine Co.
Shartle Brothers Machine Co.

PRESSES
Black-Clawson Company
Farrel-Birmingham Co.
Dietz Machine Wks.
Hudson-Sharp Machine Co.
Paper Converting Machine Co., Inc.
Potdevin Machine Co.
Shartle Brothers
Valley Iron Works Co.
Waldron Corp., John
Weber, Homer G.

PULLEY & SHAFTS
Black-Clawson Company
Downingtown Mfg. Co.
E. D. Jones & Son Co.
Montague Machine Co.
D. J. Murray Mfg. Co.
The Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Stearns Magnetic Mfg. Co.
Valley Iron Works Co.
T. B. Wood's Sons Company

PULPS
Andersen Co., J.
Gotteaman & Co., Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.

WHERE TO BUY

PUMPS
Black-Clawson Company
Dorr Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Frederick Iron and Steel Co.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Noble & Wood Machine Co.
Paper Converting Mch. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Warren Steam Pump Co.
Worthington Pump & Machinery Corp.

RAG THRASHERS
The Norwood Engineering Company

REAM COUNTERS
Hamblet Machine Co.

RECOVERY SYSTEMS
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones
Ross Engineering Corp., J. O.
Valley Iron Works Co.

REELS
Black-Clawson Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Hudson Sharp Machine Company
Montague Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Rodney Hunt Machine Co.
The Norwood Engineering Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.

REFINERS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
E. D. Jones & Sons Co.
Murray, D. J. Mfg. Co.
Noble & Wood Machine Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works

REGULATORS & CONTROLLERS
Armstrong Machine Works
Bird Machine Company
The Brown Instrument Co.
The Foxboro Company
Jones, E. D., & Sons Co.
General Electric Co.
Johnson Corp.
Leeds & Northrup Company
Mason-Neilan Regulator Co.
National Technical Laboratories
Noble & Wood Machine Co.
Shartle Brothers
Permutit Co.
Taylor Instrument Companies
Wallace & Tiernan
Westinghouse Electric & Manufacturing Company

RESEARCH
Cellulose Products Laboratory
du Pont, E. I.

ROLLS
Appleton Machine Co.
Black-Clawson Company
Cincinnati Rubber Mfg. Co.
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Improved Paper Machy. Corp.
Lobdell Car Wheel Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Montague Machine Co.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
The Norwood Engineering Company
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
Roehlen Engraving Co.
J. J. Ross Company
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sinclair Co.
Smith & Winchester Mfg. Co.
Stearns Magnetic Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

ROLL STANDS
Cameron Machine Co.
Improved Paper Machy. Corp.
Johnstone Eng. & Machine Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.

SATURATING MACHINES
Black-Clawson Company
Moore & White Co.
Noble & Wood Machine Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

SCALES
Merrick Scale Mfg. Co.
Testing Machines, Inc.

SCREEN DIAPHRAGMS
Cincinnati Rubber Mfg. Co.
E. D. Jones & Sons Co.
The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

SCREEN PLATES
Union Machine Co.
Union Screen Plate Co.

SCREENS
Appleton Wire Works
Appleton Machine Co.
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Harrington & King Perforating Co.
Hendrick Manufacturing Co.
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
Montague Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

SHEET MACHINES
Noble & Wood Machine Co.
Testing Machines, Inc.
Valley Iron Works Co.

SHELLS (Jordan)
E. D. Jones & Sons Co.
Noble & Wood Machine Co.

SHOWER PIPES
Bird Machine Company
Downingtown Mfg. Co.
Improved Paper Machy. Corp.
Moore & White Co.
Shartle Bros. Mach. Co.
Smith & Winchester Mfg. Co.

SHREDDERS
Bauer Brothers Co.
Carthage Machine Co.

SILICATE OF SODA
Philadelphia Quartz Co.

SIZING
American Cyanamid & Chemical Co.
Black-Clawson Company
The Dow Chemical Co.
du Pont, E. I., de Nemours & Co.
Glidden Company
Paper Makers Chemical Department, Hercules Powder Co.
Socony-Vacuum Co.
Philadelphia Quartz Co.

SIZING PROCESS
Process Engineers

SLIME ELIMINATION
The Dow Chemical Co.
E. I. DuPont de Nemours & Co.
Grasselli Chemicals Dept.
Monsanto Chemical Company
Wallace & Tiernan Co., Inc.

SLITTERS & CUTTERS
Black-Clawson Company
Cameron Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Greene Machine Co.
Hamblet Machine Co.
Hudson Sharp Machine Company
Johnstone Eng. & Machine Co.
Langston Co., Samuel M.
Moore & White Co.
Potdevin Machine Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Waldron Corp., John

SORTING TABLES
Moore & White Co.

SPECIAL MACHINERY
Appleton Machine Co.
Downingtown Mfg. Co.
Farrell-Birmingham Co.
Hamblet Machine Co.
Hudson Sharp Machine Company
Improved Paper Machy Corp.
E. D. Jones & Sons Co.
Merrick Scale Mfg. Co.
Montague Machine Co.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
The Norwood Engineering Company
Paper Converting Machine Co., Inc.
Potdevin Machine Co.
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

STARCH
American Cyanamid & Chemical Corp.
Clinton Co.
National Starch Products, Inc.
Stein, Hall & Co., Inc.

STEAM SPECIALTIES
Johnson Corp.
The Permutit Company
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

STEEL PLATE CONSTRUCTION
Hendrick Mfg. Co.
Ross Engrg. Corp., J. O.

STRAPPING & STRAPPING MACHINES
Acme Steel Co.
Stanley Steel Wks.

STUFF CHESTS
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

SUCTION BOXES
Black-Clawson Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

SUCTION BOX COVERS
Black-Clawson Company
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Westinghouse Electric & Manufacturing Company

SULPHUR
American Cyanamid & Chemical Corp.
Stauffer Chemical Company
Texas Gulf Sulphur Co.
Wishnick-Tumpeer, Inc.

SULPHUR BURNERS
Valley Iron Works Co.

SULPHUR DIOXIDE
Ansul Chemical Company
Virginia Smelting Co.

TANKS
Hendrick Mfg. Co.
E. D. Jones & Sons Co.
Kalamazoo Tank & Silo Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
The Noble & Wood Machine Co.
The H. K. Porter Company
Rodney Hunt
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Waldron Corp., John

TESTERS
Perkins & Son, Inc., B. F.
Testing Machines, Inc.
W. & L. E. Gurley
W. H. & L. D. Betz
Leeds & Northrup Company
National Technical Laboratories
The Permutit Company
Wallace & Tiernan Co., Inc.

THICKENERS, DECKERS & SAVEALLS
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works
Dorr Co.
Downingtown Mfg. Co.
Improved Paper Mchy. Corp.
Montague Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

TITANIUM
Krebs Pigment and Color Corp.
Chemical & Pigment Co.
Titanium Pigment Co.
United Color & Pigment Co.
R. T. Vanderbilt Co.
Wishnick-Tumpeer, Inc.

TOOLS
Acme Steel Company
Stanley Steel Wks.
Walworth Company

TRANSMISSION MACHINERY
Appleton Machine Co.
Black-Clawson Company
De Laval Steam Turbine Co.
Rodney Hunt Mach. Co.
Farrel-Birmingham Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Timken Roller Bearing Co.
Westinghouse Elec. & Mfg. Co.
Worthington Pump & Machinery Corp.
Valley Iron Works Co.

TRAPS
Armstrong Machine Works
Crane Co.
Grinnell Company
Johnson Corporation
Shartle Bros. Mch. Co.

TRIMMERS
The Smith & Winchester Mfg. Co.

TUBS
Noble & Wood Machine Co.
Rodney Hunt Machine Co.
Shartle Brothers
Valley Iron Works Co.

TURBINE
De Laval Steam Turbine Co.
General Electric Company
Hunt, Rodney, Mach. Co.
Westinghouse Electric & Manufacturing Company
Worthington Pump & Machinery Corp.

USED EQUIPMENT
Frank H. Davis Company
Gibbs-Brower Co.
Noble & Wood Machine Co.
J. J. Ross Company
Shartle Brothers Machine Co.

VALVES
Dilts Machine Works
The Foxboro Company
E. D. Jones & Sons Co.
Mason-Neilan Regulator Co.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
The Permutit Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Taylor Instrument Companies
Valley Iron Works Co.
Walworth Company

VATS & VAT PARTS
Union Machine Co.
Union Screen Plate Co.

WASHERS
Bird Machine Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Rodney Hunt Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

WATER CONDITIONING EQUIPMENT
The Permutit Company
Worthington Pump & Machinery Corp.

WAXES
Pennotex Oil Corp.

WAXING MACHINERY
Black-Clawson Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

WELDING EQUIPMENT
General Electric Company
Walworth Company
Westinghouse Electric & Manufacturing Company

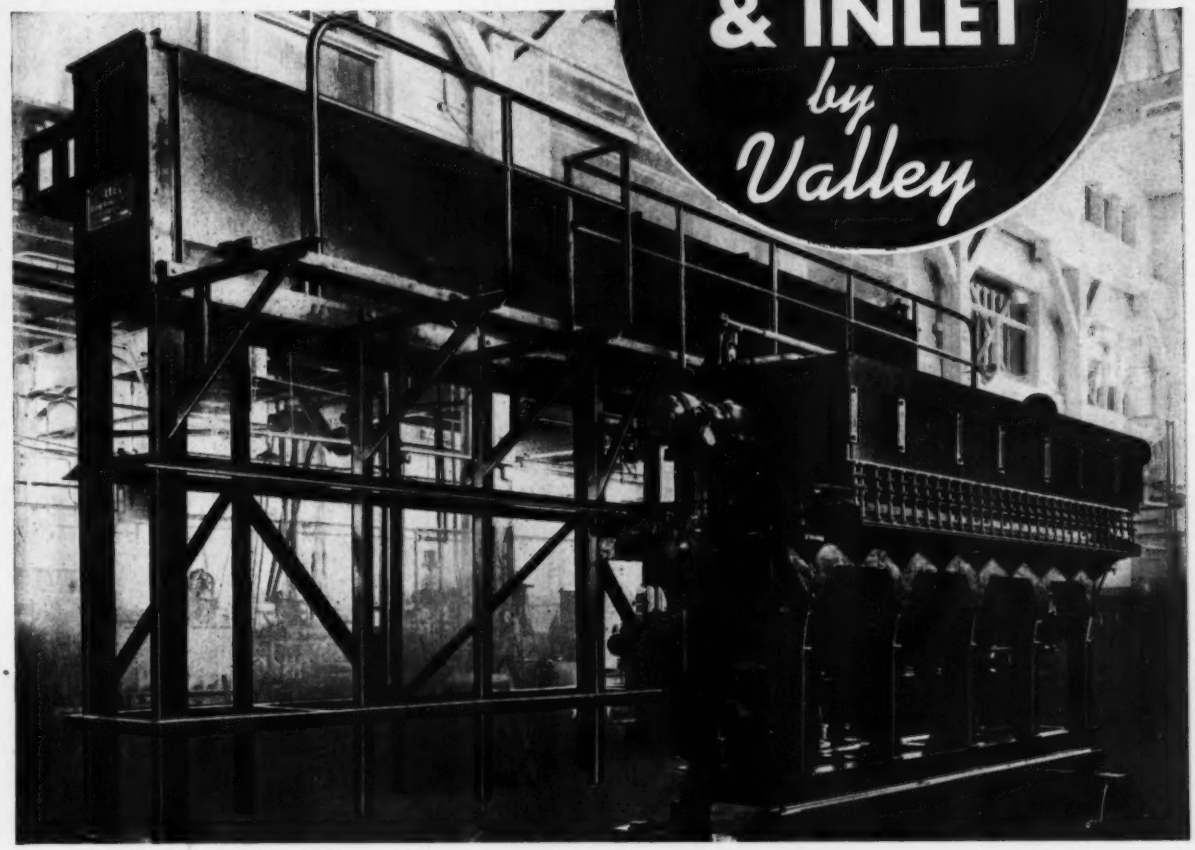
WET MACHINES
Black-Clawson Co.
Carthage Machine Co.
Downingtown Mfg. Co.
Improved Paper Machy. Corp.
Moore & White Co.
Montague Machine Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

WINDERS AND REWINDERS
Black-Clawson Company
Cameron Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Hudson-Sharp Mach. Co.
Langston Co., Samuel M.
Johnstone Eng. & Machine Co.
Montague Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Potdevin Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Waldron Corp., John

WIRES
Appleton Wire Works
Black-Clawson Company
Cheney Bigelow Wire Works
Hayden Wire Works
International Wire Works
Lindsay Wire Weaving Co.
Shartle Brothers Machine Co.

WOOD SPLITTERS
Carthage Machine Co.
D. J. Murray Mfg. Co.
Moore & White Co.
Valley Iron Works Co.

HEADBOX & INLET by Valley



PLANNING AHEAD?

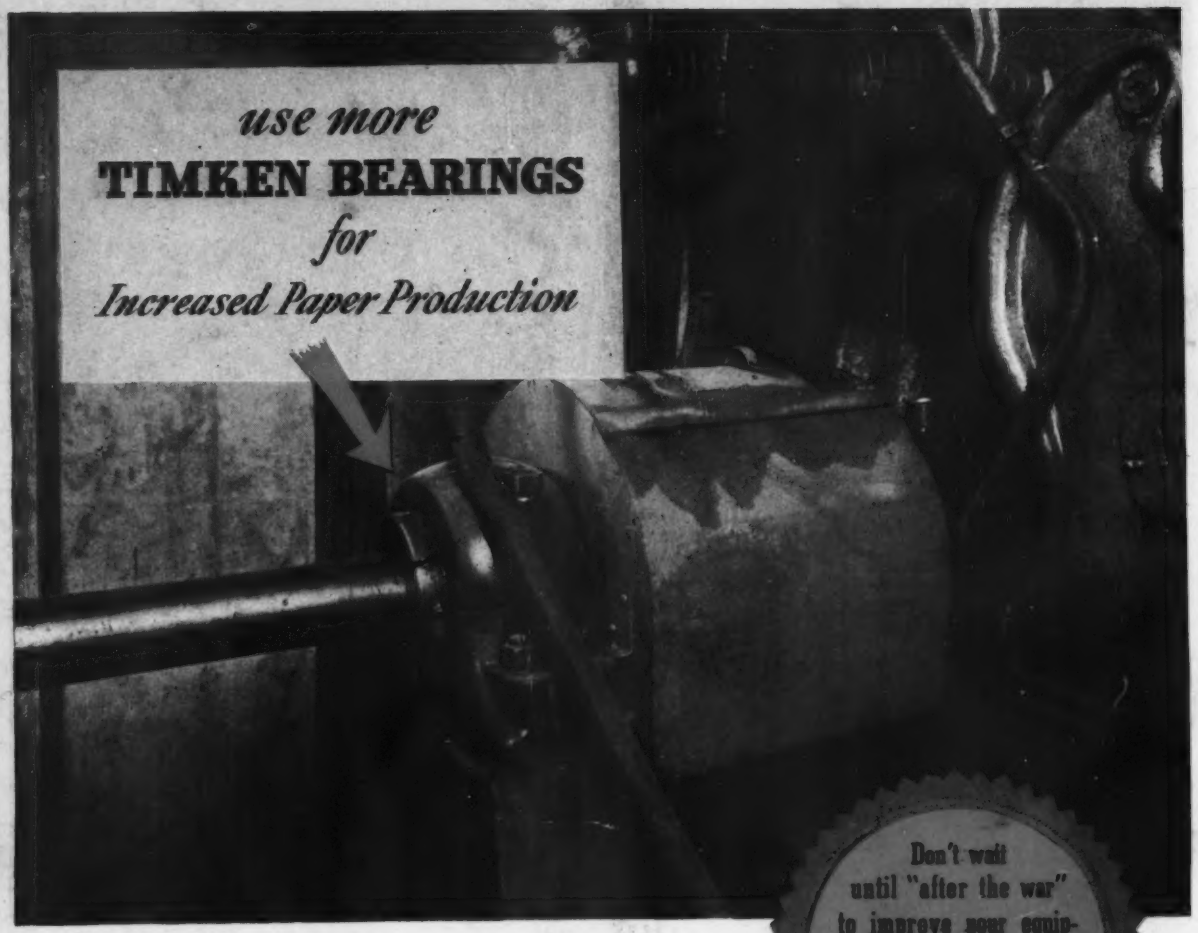
We hear much these days about post-war planning. Most of this planning is important, vital. Some of it could better wait until the more serious task we have before us is finished.

But certainly industrial planning falls in a "must" category. Redistribution of manpower will be a challenging problem, and industry must be ready with a streamline program — the paper industry no exception. The post-war demand for paper will tax the mills of the country to peak capacity!

Will *your* equipment be able to take fullest advantage of this production opportunity? How about your inlets — pace-setters of paper output? While there's very little we can build for you now, we *can* help you *plan*. And a worked-out plan will represent much ground covered when the green light of peace is again turned on.

VALLEY IRON WORKS CO. • APPLETON, WISCONSIN

Slices and Head Boxes • Screw Presses • Micro-Mist Spray Dampeners • Laboratory Equipment
Pulp Washing Systems • High-Speed Beaters • Breaker Beaters • Vortex Beaters • Plug Valves
Sutherland Refiners • Flat and Rotary Screens • Thickeners • Deckers • Paper Markers • Roll-Headers



Dodge-Timken Clamp-Sleeve Self-Aligning Pillow Blocks on press roll drive of paper machine.

Don't wait until "after the war" to improve your equipment—it may be too late. Redesign now and use Timken Bearings wherever possible.

Existing equipment often can be speeded up; its life extended; waste and maintenance reduced; by the application of Timken Tapered Roller Bearings at every possible point of friction and hard service.

When new machines are being designed or old models redesigned to bring them up to date, the liberal use of Timken Bearings will go far towards giving them the superior performance and greater endurance that will be required to successfully meet the competitive challenge of the post-war era. The Timken Roller Bearing Company, Canton, Ohio.

TIMKEN
TRADE-MARK REG. U.S. PAT. OFF.
TAPERED ROLLER BEARINGS